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TOSHIBA

FILE NO. A90-9503

SERVICE MANUAL

AIR-CONDITIONER

SPLIT BUILT-IN DUCT TYPE, HEAT PUMP

RAV-162BH-PE/162AH-PE
RAV-262BH-PE/262AH-PE
RAV-262BH-PE/262AH8-PE
RAV-362BH-PE/362AH8-PE
RAV-462BH-PE/462AH8-PE

SPLIT CEILING TYPE, HEAT PUMP

RAV-162CH-PE/RAV-162AH-PE
RAV-262CH-PE/RAV-262AH-PE
RAV-262CH-PE/RAV-262AH8-PE
RAV-362CH-PE/RAV-362AH8-PE
RAV-462CH-PE/RAV-462AH8-PE

SPLIT WALL TYPE, HEAT PUMP

RAV-162KH(W)-PE/RAV-162AH-PE
RAV-262KH(W)-PE/RAV-262AH-PE
RAV-262KH(W)-PE/RAV-262AH8-PE

SPLIT CASSETTE TYPE, HEAT PUMP

RAV-132UH-PE
RAV-162UH-PE/162AH-PE
RAV-262UH-PE/262AH-PE
RAV-262UH-PE/262AH8-PE
RAV-362UH-PE/362AH8-PE
RAV-462UH-PE/462AH-PE

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CONTENTS

1. SPECIFICATIONS 3
2. CONSTRUCTION VIEWS 15
3. WIRING DIAGRAM 22
4. SPECIFICATIONS OF ELECTRICAL PARTS 32
5. REFRIGERANT PIPING DIAGRAM 41
6. REMOTE CONTROLLER 46
7. OUTLINE OF CONTROL CIRCUIT 59
8. DESCRIPTION OF INDOOR UNIT CONTROL CIRCUIT 62
9. DESCRIPTION OF OUTDOOR UNIT CONTROL CIRCUIT 68
10. OPERATION OF AIR CONDITIONER FROM OUTDOOR UNIT 73
11. EMERGENCY OPERATION 74
12. APPLIED CIRCUIT 75
13. WIRING FOR GROUP OPERATION 75
14. PERFORMANCE CHARACTER 76
15. EXPLODED VIEWS AND PARTS LISTS 79

SUMMARY

- The units referred to within this manual conform with the protection requirements of Directives 89/336/EEC Electromagnetic Compatibility and 73/23/EEC Low Voltage.
- Operating conditions of units are as follows:

TEMPERATURE	
OUTDOOR TEMPERATURE	-2 TO 43°C (COOL) -10 TO 21°C (HEAT)
ROOM TEMPERATURE	18 TO 32°C (COOL) 15 TO 29°C (HEAT)
ROOM HUMIDITY	LESS THAN 80% (COOL)

Note 1 : Cooling Capacity is based on the following temperature conditions:
Indoor air inlet temperature 27°C DB, 19°C WB.
Outdoor air inlet temperature 35°C DB.

Note 2: Heating Capacity is based on the following temperature conditions:
Indoor air inlet temperature 20°C DB.
Outdoor air inlet temperature 7°C DB, 6°C WB.

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1. SPECIFICATIONS

ITEM \ MODEL			RAV-162BH-PE	
Cooling capacity		kW	4.5	
Heating capacity		kW	5.0	
Power source		Phase	1	
		V	220-240	
		Hz	50	
			COOLING	HEATING
Power consumption		kW	2.3	2.2
Power factor		%	90	90
Running current		A	11.1	10.6
Starting current		A	60	
Operating noise (SPL)	Indoor unit (High, Med, Low)	dB(A)	42/39/36	
	Outdoor unit	dB(A)	50	
Refrigerant	Name of refrigerant		R-22	
	Charge volume	kg	1.6	
	Add. volume (20-30m)	g/m	35	
Refrigerant control			Capillary tube & Expansion valve	
Interconnection pipe	Larger side size	mm	ø12.7	
	Coupler style		Flare	
	Smaller side size	mm	ø 6.4	
	Coupler style		Flare	
	Standard length	m	7.5	
	Maximum length (of one way) *1	m	30	
	Maximum height			
	Indoor unit height	m	15	
	Outdoor unit height	m	30	
Condensate drain pipe diameter		mm	ø 32 (OD)	
INDOOR UNIT Model			**RAV-162BH-PE**	
Appearance colour			Black (Zinc galvanized steel + thermal insulator)	
Dimensions	Height	mm	345	
	Width	mm	700	
	Depth	mm	800	
Net weight		kg	39	
Heat exchanger type			Finned tube	
Indoor fan type			Multi-blade fan	
Air volume		m^3/h	840	
Fan motor output		W	60	
External static pressure	Standard	mmAq	4	
	Max. motor	mmAq	10	
OUTDOOR UNIT Model			**RAV-162AH-PE**	
Appearance colour			Bronze white (Munsell 6Y7.5/1)	
Dimensions	Height	mm	740	
	Width	mm	880	
	Depth	mm	310	
Net weight		kg	61	
Heat exchanger type			Finned tube	
Outdoor fan type			Propeller fan	
Air flow volume		m^3/h	2,700	
Fan motor output		W	39	
Compressor	Model		PH250X3-4LS	
	Output	kW	2.0	
Protective device			High pressure switch, Fuse, Crankcase heater, Overload relay, Bimetal thermostat	
CEILING PANEL Model			**RBC-B161PE(W)**	
Appearance colour			Silky mist (Munsell 1Y8.9/0.5)	
Dimensions	Height	mm	40	
	Width	mm	780	
	Depth	mm	500	
Net weight		kg	4	
Air filter			Washable	
Flexible duct			RBC-FD202E	
Blowout unit			RBC-BU1E(W)	
Suction canvas			RBC-CA161BE	
Long-life filter kit			RBC-LK161BE	
Built-in duct filter kit			RBC-DK161BE-P	

Specifications are subject to change without notice.

* Note 1: These mean actual length.

ITEM \ MODEL			RAV-262BH-PE		RAV-262BH-PE	
Cooling capacity		kW	7.1			
Heating capacity		kW	7.9			
Power source		Phase	1		3	
		V	220-240		380-415	
		Hz	50			
			COOLING	HEATING	COOLING	HEATING
Power consumption		kW	3.0	2.75	2.8	2.7
Power factor		%	88	87	86	85
Running current		A	14.8	13.8	4.7	4.6
Starting current		A	80		25	
Operating noise (SPL)	Indoor unit (High, Med, Low)	dB (A)	43/40/37			
	Outdoor unit	dB (A)	53			
Refrigerant	Name of refrigerant		R-22			
	Charge volume	kg	2.35			
	Add. volume (20-30m)	g/m	60			
Refrigerant control			Capillary tube & Expansion valve			
Interconnection pipe	Larger side size	mm	ø 15.9			
	Coupler style		Flare			
	Smaller side size	mm	ø 9.5			
	Coupler style		Flare			
	Standard length	m	7.5			
	Maximum length (of one way) *1	m	30			
	Maximum height					
	Indoor unit height	m	15			
	Outdoor unit height	m	30			
Condensate drain pipe diameter		mm	ø 32 (OD)			
INDOOR UNIT Model			**RAV-262BH-PE**			
Appearance colour			Black (zinc galvanized steel + thermal insulator)			
Dimensions	Height	mm	345			
	Width	mm	1,000			
	Depth	mm	800			
Net weight		kg	53			
Heat exchanger type			Finned tube			
Indoor fan type			Multi-blade fan			
Air volume		m^3/h	1,140			
Fan motor output		W	100			
External static pressure	Standard	mmAq	4			
	Max. motor	mmAq	10			
OUTDOOR UNIT Model			**RAV-262AH-PE**		**RAV-262AH8-PE**	
Appearance colour			Bronze white (Munsell 6Y7.5/1)			
Dimensions	Height	mm	790			
	Width	mm	880			
	Depth	mm	310			
Net weight		kg	80			
Heat exchanger type			Finned tube			
Outdoor fan type			Propeller fan			
Air flow volume		m^3/h	3,000			
Fan motor output		W	63			
Compressor	Model		PH330X3-4MS		YH330X3-MS	
	Output	kW	2.2		2.2	
Safety device			High pressure switch, Fuse, Bimetal thermostat, Crankcase heater, Inner overload relay		High pressure switch, Fuse, Overcurrent relay, Crankcase heater, Thermostat, Return-Lock	
CEILING PANEL Model			**RBC-B260PE(W)**			
Appearance colour			Silky mist (Munsell 1Y8.9/0.5)			
Dimensions	Height	mm	40			
	Width	mm	1,080			
	Depth	mm	500			
Net weight		kg	6			
Air filter			Washable			
Flexible duct			RBC-FD202E			
Blowout unit			RBC-BU1E(W)			
Suction canvas			RBC-CA260BE			
Long-life filter kit			RBC-LK260BE			
Built-in duct filter kit			RBC-DK261BE-P			

Specifications are subject to change without notice.

* Note 1: These mean actual length.

ITEM \ MODEL				RAV-362BH-PE		RAV-462BH-PE	
Cooling capacity			kW	10.0		12.5	
Heating capacity			kW	10.8		13.8	
Power source			Phase	3		3	
			V	380-415		380-415	
			Hz	50		50	
				COOLING	HEATING	COOLING	HEATING
Power consumption			kW	4.2	3.6	5.15	4.9
Power factor			%	89	87	87	88
Running current			A	6.8	6.0	8.5	8.0
Starting current			A	42		50	
Operating noise (SPL)	Indoor unit (High, Med, Low)		dB (A)	45/42/39		46/43/40	
	Outdoor unit		dB (A)	55		55	
Refrigerant	Name of refrigerant			R-22		R-22	
	Charge volume		kg	3.4		3.9	
	Add. volume (20-50m)		g/m	50		50	
Refrigerant control				Capillary tube & Expansion valve		Capillary tube & Expansion valve	
Interconnection pipe	Larger side size	*2	mm	ø 19 (ø22)		ø 19 (ø22)	
	Coupler style			Flare		Flare	
	Smaller side size		mm	ø 9.5		ø 9.5	
	Coupler style			Flare		Flare	
	Standard length		m	7.5		7.5	
	Maximum length (of one way)	*1	m	50		50	
	Maximum height						
	Indoor unit height		m	20		20	
	Outdoor unit height		m	50		50	
Condensate drain pipe diameter			mm	ø 32 (OD)		ø 32 (OD)	
INDOOR UNIT Model				RAV-362BH-PE		RAV-462BH-PE	
Appearance colour				Black (zinc galvanized steel + thermal insulator)			
Dimensions	Height		mm	345		345	
	Width		mm	1,350		1,350	
	Depth		mm	800		800	
Net weight			kg	58		62	
Heat exchanger type			mm	Finned tube		Finned tube	
Indoor fan type				Multi-blade fan		Multi-blade fan	
Air volume			m³/h	1,820		2,100	
Fan motor output			W	120		140	
External static pressure	Standard		mmAq	4		4	
	Max. motor		mmAq	10		10	
OUTDOOR UNIT Model				RAV-362AH8-PE		RAV-462AH8-PE	
Appearance colour				Bronze white (Munsell 6Y7.5/1)		Bronze white (Munsell 6Y7.5/1)	
Dimensions	Height		mm	1,240		1,240	
	Width		mm	930		930	
	Depth		mm	385		385	
Net weight			kg	107		115	
Heat exchanger type				Finned tube		Finned tube	
Outdoor fan type				Propeller fan		Propeller fan	
Air flow volume			m³/h	6,000		6,000	
Fan motor output			W	39+63		39+63	
Compressor	Model			YH406JA		YH506JA	
	Output		kW	3.0		3.75	
Safety device				High pressure switch, Fuse, Overload relay, Crankcase heater, Inner overload relay		High pressure switch, Fuse, Overload relay, Crankcase heater, Inner overload relay	
CEILING PANEL Model				RBC-B460PE(W)		RBC-B460PE(W)	
Appearance colour				Silky mist (Munsell 1Y8.9/0.5)		Silky mist (Munsell 1Y8.9/0.5)	
Dimensions	Height		mm	40		40	
	Width		mm	1,430		1,430	
	Depth		mm	500		500	
Net weight			kg	7		7	
Air filter				Washable		Washable	
Flexible duct				RBC-FD202E			
Blowout unit				RBC-BÚ1E(W)			
Suction canvas				RBC-CA460BE			
Long-life filter kit				RBC-LK460BE			
Built-in duct filter kit				RBC-DK461BE-P			

Specifications are subject to change without notice.

* Note 1: These mean actual length.

* Note 2: (ø22) should be used when length of pipe exceeds 30m.

ITEM \ MODEL			RAV-162CH-PE	
Cooling capacity		kW	4.5	
Heating capacity		kW	5.0	
Power source		Phase	1	
		V	220-240	
		Hz	50	
			COOLING	HEATING
Power consumption		kW	2.3	2.2
Power factor		%	90	90
Running current		A	11.1	10.6
Starting current		A	60	
Operating noise (SPL)	Indoor unit (High, Med, Low)	dB(A)	42/39/36	
	Outdoor unit	dB(A)	50	
Refrigerant	Name of refrigerant		R-22	
	Charge volume	kg	1.6	
	Add. volume (20-30m)	g/m	35	
Refrigerant control			Capillary tube & Expansion valve	
Interconnection pipe	Larger side size	mm	ø12.7	
	Coupler style		Flare	
	Smaller side size	mm	ø 6.4	
	Coupler style		Flare	
	Standard length	m	7.5	
	Maximum length (of one way) *1	m	30	
	Maximum height			
	Indoor unit height	m	15	
	Outdoor unit height	m	30	
Condensate drain pipe diameter		mm	ø 20 (ID)	
INDOOR UNIT Model			**RAV-162CH-PE**	
Appearance colour			Silky mist	
Dimensions	Height	mm	188	
	Width	mm	1,030	
	Depth	mm	640	
Net weight		kg	24	
Heat exchanger type			Finned tube	
Indoor fan type			Multi-blade fan	
Air volume		m^3/h	780	
Fan motor output		W	34	
Air filter			Washable	
OUTDOOR UNIT Model			**RAV-162AH-PE**	
Appearance colour			Bronze white (Munsell 6Y7.5/1)	
Dimensions	Height	mm	740	
	Width	mm	880	
	Depth	mm	310	
Net weight		kg	61	
Heat exchanger type			Finned tube	
Outdoor fan type			Propeller fan	
Air flow volume		m^3/h	2,700	
Fan motor output		W	39	
Compressor	Model		PH250X3-4LS	
	Output	kW	2.0	
Protective device			High pressure switch, Fuse, Crankcase heater, Overload relay, Bimetal thermostat	

Specifications are subject to change without notice.

* Note 1 : These mean actual length.

ITEM \ MODEL				RAV-262CH-PE		RAV-262CH-PE	
Cooling capacity			kW	7.1			
Heating capacity			kW	7.9			
Power source			Phase	1		3	
			V	220-240		380-415	
			Hz	50			
				COOLING	HEATING	COOLING	HEATING
Power consumption			kW	3.0	2.75	2.8	2.7
Power factor			%	88	87	86	85
Running current			A	14.8	13.8	4.7	4.6
Starting current			A	80		25	
Operating noise (SPL)	Indoor unit		dB (A)	45/41/37			
	Outdoor unit		dB (A)	53			
Refrigerant	Name of refrigerant			R-22			
	Charge volume		kg	2.35			
	Add. volume (20-30m)		g/m	60			
Refrigerant control				Capillary tube & Expansion valve			
Interconnection pipe	Larger side size		mm	ø 15.9			
	Coupler style			Flare			
	Smaller side size		mm	ø 9.5			
	Coupler style			Flare			
	Standard length		m	7.5			
	Maximum length (of one way)	*1	m	30			
			m	15			
	Outdoor unit height		m	30			
Condensate drain pipe diameter			mm	ø 20 (ID)			
INDOOR UNIT Model	Maximum height			**RAV-262CH-PE**			
Appearance colour	Indoor unit height			Silky mist			
Dimensions	Height		mm	188			
	Width		mm	1,230			
	Depth		mm	640			
Net weight			kg	28			
Heat exchanger type				Finned tube			
Indoor fan type				Multi-blade fan			
Air volume			m^3/h	1,200			
Fan motor output			W	34			
Air filter				Washable			
OUTDOOR UNIT Model				**RAV-262AH-PE**		**RAV-262AH8-PE**	
Appearance colour				Bronze white (Munsell 6Y7.5/1)			
Dimensions	Height		mm	790			
	Width		mm	880			
	Depth		mm	310			
Net weight			kg	80			
Heat exchanger type				Finned tube			
Outdoor fan type				Propeller fan			
Air flow volume			m^3/h	3,000			
Fan motor output			W	63			
Compressor	Model			PH330X3-4MS		YH330X3-MS	
	Output		kW	2.2		2.2	
Safety device				High pressure switch, Fuse, Bimetal thermostat, Crankcase heater, Inner overload relay		High pressure switch, Fuse, Overcurrent relay, Crankcase heater, Thermostat, Return-Lock	

Specifications are subject to change without notice.

* Note 1 : These mean actual length.

ITEM \ MODEL				RAV-362CH-PE		RAV-462CH-PE	
Cooling capacity			kW	10.5		13.0	
Heating capacity			kW	10.8		13.8	
Power source			Phase	3		3	
			V	380-415		380-415	
			Hz	50		50	
				COOLING	HEATING	COOLING	HEATING
Power consumption			kW	4.2	3.6	5.15	4.9
Power factor			%	89	87	87	88
Running current			A	6.8	6.0	8.5	8.0
Starting current			A	42		50	
Operating noise (SPL)	Indoor unit (High, Med, Low)		dB (A)	47/43/40		49/45/41	
	Outdoor unit		dB (A)	55		55	
Refrigerant	Name of refrigerant			R-22		R-22	
	Charge volume		kg	3.4		3.9	
	Add. volume (20-50m)		g/m	50		50	
Refrigerant control				Capillary tube & Expansion valve		Capillary tube & Expansion valve	
Interconnection pipe	Larger side size	*2	mm	ø 19 (ø22)		ø 19 (ø22)	
	Coupler style			Flare		Flare	
	Smaller side size		mm	ø 9.5		ø 9.5	
	Coupler style			Flare		Flare	
	Standard length		m	7.5		7.5	
	Maximum length (of one way)	*1	m	50		50	
	Maximum height						
	Indoor unit height		m	20		20	
	Outdoor unit height		m	50		50	
Condensate drain pipe diameter			mm	ø 20 (ID)		ø 20 (ID)	
INDOOR UNIT Model				**RAV-362CH-PE**		**RAV-462CH-PE**	
Appearance colour				Silky mist		Silky mist	
Dimensions	Height		mm	240		240	
	Width		mm	1,430		1,630	
	Depth		mm	640		640	
Net weight			kg	39		44	
Heat exchanger type			mm	Finned tube		Finned tube	
Indoor fan type				Multi-blade fan		Multi-blade fan	
Air volume			m^3/h	1,680		2,100	
Fan motor output			W	75		75	
Air filter				Washable		Washable	
OUTDOOR UNIT Model				**RAV-362AH8-PE**		**RAV-462AH8-PE**	
Appearance colour				Bronze white (Munsell 6Y7.5/1)		Bronze white (Munsell 6Y7.5/1)	
Dimensions	Height		mm	1,240		1,240	
	Width		mm	930		930	
	Depth		mm	385		385	
Net weight			kg	107		115	
Heat exchanger type				Finned tube		Finned tube	
Outdoor fan type				Propeller fan		Propeller fan	
Air flow volume			m^3/h	6,000		6,000	
Fan motor output			W	39+63		39+63	
Compressor	Model			YH406JA		YH506JA	
	Output		kW	3.0		3.75	
Safety device				High pressure switch, Fuse, Overload relay, Crankcase heater, Inner overload relay		High pressure switch, Fuse, Overload relay, Crankcase heater, Inner overload relay	

Specifications are subject to change without notice.

* Note 1 : These mean actual length.

* Note 2 : (ø22) should be used when the length of pipe exceeds 30m.

ITEM \ MODEL			RAV-162KH(W)-PE	
Cooling capacity		kW	4.5	
Heating capacity		kW	5.0	
Power source		Phase	1	
		V	220-240	
		Hz	50	
			COOLING	HEATING
Power consumption		kW	2.3	2.2
Power factor		%	90	90
Running current		A	11.1	10.6
Starting current		A	60	
Operating noise (SPL)	Indoor unit (High, Med, Low)	dB(A)	45/40/38	
	Outdoor unit	dB(A)	50	
Refrigerant	Name of refrigerant		R-22	
	Charge volume	kg	1.6	
	Add. volume (20-30m)	g/m	35	
Refrigerant control			Capillary tube & Expansion valve	
Interconnection pipe	Larger side size	mm	ø12.7	
	Coupler style		Flare	
	Smaller side size	mm	ø 6.4	
	Coupler style		Flare	
	Standard length	m	7.5	
	Maximum length (of one way) *1	m	30	
	Maximum height			
	Indoor unit height	m	15	
	Outdoor unit height	m	30	
Condensate drain pipe diameter		mm	ø 20 (ID)	
INDOOR UNIT Model			**RAV-162KH(W)-PE**	
Appearance colour			Silky mist	
Dimensions	Height	mm	370	
	Width	mm	1,020	
	Depth	mm	200	
Net weight		kg	19	
Heat exchanger type			Finned tube	
Indoor fan type			Transverse flow fan	
Air volume		m^3/h	780	
Fan motor output		W	27	
Air filter			Washable	
OUTDOOR UNIT Model			**RAV-162AH-PE**	
Appearance colour			Bronze white (Munsell 6Y7.5/1)	
Dimensions	Height	mm	740	
	Width	mm	880	
	Depth	mm	310	
Net weight		kg	61	
Heat exchanger type			Finned tube	
Outdoor fan type			Propeller fan	
Air flow volume		m^3/h	2,700	
Fan motor output		W	39	
Compressor	Model		PH250X3-4LS	
	Output	kW	2.0	
Protective device			High pressure switch, Fuse, Crankcase heater, Overload relay, Bimetal thermostat	

Specifications are subject to change without notice.

* Note 1 : These mean actual length.

ITEM \ MODEL				RAV-262KH(W)-PE		RAV-262KH(W)-PE	
Cooling capacity			kW	7.1			
Heating capacity			kW	7.9			
Power source			Phase	1		3	
			V	220-240		380-415	
			Hz	50			
				COOLING	HEATING	COOLING	HEATING
Power consumption			kW	3.0	2.75	2.8	2.7
Power factor			%	88	87	86	85
Running current			A	14.8	13.8	4.7	4.6
Starting current			A	80		25	
Operating noise (SPL)	Indoor unit		dB (A)	46/42/38			
	Outdoor unit		dB (A)	53			
Refrigerant	Name of refrigerant			R-22			
	Charge volume		kg	2.35			
	Add. volume (20-30m)		g/m	60			
Refrigerant control				Capillary tube & Expansion valve			
Interconnection pipe	Larger side size		mm	ø 15.9			
	Coupler style			Flare			
	Smaller side size		mm	ø 9.5			
	Coupler style			Flare			
	Standard length		m	7.5			
	Maximum length (of one way)	*1	m	30			
			m	15			
	Outdoor unit height		m	30			
Condensate drain pipe diameter			mm	ø 20 (ID)			
INDOOR UNIT Model	Maximum height			**RAV-262KH(W)-PE**			
Appearance colour	Indoor unit height			Silky mist			
Dimensions	Height		mm	370			
	Width		mm	1,350			
	Depth		mm	200			
Net weight			kg	25			
Heat exchanger type				Finned tube			
Indoor fan type				Transverse flow fan			
Air volume			m^3/h	1,200			
Fan motor output			W	27			
Air filter				Washable			
OUTDOOR UNIT Model				**RAV-262AH-PE**		**RAV-262AH8-PE**	
Appearance colour				Bronze white (Munsell 6Y7.5/1)			
Dimensions	Height		mm	790			
	Width		mm	880			
	Depth		mm	310			
Net weight			kg	80			
Heat exchanger type				Finned tube			
Outdoor fan type				Propeller fan			
Air flow volume			m^3/h	3,000			
Fan motor output			W	63			
Compressor	Model			PH330X3-4MS		YH330X3-MS	
	Output		kW	2.2		2.2	
Safety device				High pressure switch, Fuse, Bimetal thermostat, Crankcase heater, Inner overload relay		High pressure switch, Fuse, Overcurrent relay, Crankcase heater, Thermostat, Return-Lock	

Specifications are subject to change without notice.

* Note 1 : These mean actual length.

ITEM \ MODEL			RAV-132UH-PE
Power source		Phase	1
		V	220-240
		Hz	50
Power consumption		kW	0.066
Power factor		%	93
Running current		A	0.31
Starting current		A	0.6
Operating noise (SPL) (High, Med, Low)		dB(A)	41/38/35
Refrigerant	Name of refrigerant		R-22
Interconnection pipe	Larger side size	mm	ø12.7
	Coupler style		Flare
	Smaller side size	mm	ø6.4
	Coupler style		Flare
Condensate drain pipe diameter		mm	ø32(OD)
Appearance colour			Black (zinc galvanized steel + Thermal insulator)
Dimensions	Height	mm	300
	Width	mm	840
	Depth	mm	740
Net weight		kg	28
Heat exchanger type			Finned tube
Indoor fan type			Radial fan
Air volume		m^3/h	630
Fan motor output		W	25
CEILING PANEL Model			**RBC-U262PG(W)-PE**
Appearance colour			Silky mist (Munsell 1Y8.9/0.5)
Dimensions	Height	mm	28
	Width	mm	1000
	Depth	mm	840
Net weight		kg	7
Air filter			Washable

Specifications are subject to change without notice.

ITEM / MODEL			RAV-162UH-PE	
Cooling capacity		kW	4.5	
Heating capacity		kW	5.0	
Power source		Phase	1	
		V	220-240	
		Hz	50	
			COOLING	HEATING
Power consumption		kW	2.3	2.2
Power factor		%	90	90
Running current		A	11.1	10.6
Starting current		A	60	
Operating noise (SPL)	Indoor unit (High, Med, Low)	dB(A)	44/40/37	
	Outdoor unit	dB(A)	50	
Refrigerant	Name of refrigerant		R-22	
	Charge volume	kg	1.6	
	Add. volume (20-30m)	g/m	35	
Refrigerant control			Capillary tube & Expansion valve	
Interconnection pipe	Larger side size	mm	ø12.7	
	Coupler style		Flare	
	Smaller side size	mm	ø 6.4	
	Coupler style		Flare	
	Standard length	m	7.5	
	Maximum length (of one way) *1	m	30	
	Maximum height			
	Indoor unit height	m	15	
	Outdoor unit height	m	30	
Condensate drain pipe diameter		mm	ø 32 (OD)	
INDOOR UNIT Model			**RAV-162UH-PE**	
Appearance colour			Black (zinc galvanized steel + thermal insulator)	
Dimensions	Height	mm	300	
	Width	mm	840	
	Depth	mm	740	
Net weight		kg	29	
Heat exchanger type			Finned tube	
Indoor fan type			Radial fan	
Air volume		m^3/h	980	
Fan motor output		W	30	
Air filter			Washable	
OUTDOOR UNIT Model			**RAV-162AH-PE**	
Appearance colour			Bronze white (Munsell 6Y7.5/1)	
Dimensions	Height	mm	740	
	Width	mm	880	
	Depth	mm	310	
Net weight		kg	61	
Heat exchanger type			Finned tube	
Outdoor fan type			Propeller fan	
Air flow volume		m^3/h	2,700	
Fan motor output		W	39	
Compressor	Model		PH250X3-4LS	
	Output	kW	2.0	
Protective device			High pressure switch, Fuse, Crankcase heater, Overload relay, Bimetal thermostat	
CEILING PANEL Model			**RBC-U262PG(W)-PE**	
Appearance colour			Silky mist (Munsell 1Y8.9/0.5)	
Dimensions	Height	mm	28	
	Width	mm	1,000	
	Depth	mm	840	
Net weight		kg	8.5	
Air filter			Washable	

Specifications are subject to change without notice.

* Note 1 : These mean actual length.

ITEM \ MODEL				RAV-262UH-PE		RAV-262UH-PE	
Cooling capacity			kW	7.1			
Heating capacity			kW	7.9			
Power source			Phase	1		3	
			V	220-240		380-415	
			Hz	50			
				COOLING	HEATING	COOLING	HEATING
Power consumption			kW	3.0	2.75	2.8	2.7
Power factor			%	88	87	86	85
Running current			A	14.8	13.8	4.7	4.6
Starting current			A	80		25	
Operating noise (SPL)	Indoor unit		dB (A)	45/41/37			
	Outdoor unit		dB (A)	53			
Refrigerant	Name of refrigerant			R-22			
	Charge volume		kg	2.35			
	Add. volume (20-30m)		g/m	60			
Refrigerant control				Capillary tube & Expansion valve			
Interconnection pipe	Larger side size		mm	ø 15.9			
	Coupler style			Flare			
	Smaller side size		mm	ø 9.5			
	Coupler style			Flare			
	Standard length		m	7.5			
	Maximum length (of one way)	*1	m	30			
			m	15			
	Outdoor unit height		m	30			
Condensate drain pipe diameter			mm	ø 32(OD)			
INDOOR UNIT Model	Maximum height			**RAV-262UH-PE**			
Appearance colour	Indoor unit height			Black (zinc galvanized steel + thermal insulator)			
Dimensions	Height		mm	300			
	Width		mm	840			
	Depth		mm	740			
Net weight			kg	29			
Heat exchanger type				Finned tube			
Indoor fan type				Radial fan			
Air volume			m^3/h	1,260			
Fan motor output			W	45			
Air filter				Washable			
OUTDOOR UNIT Model				**RAV-262AH-PE**		**RAV-262AH8-PE**	
Appearance colour				Bronze white (Munsell 6Y7.5/1)			
Dimensions	Height		mm	790			
	Width		mm	880			
	Depth		mm	310			
Net weight			kg	80			
Heat exchanger type				Finned tube			
Outdoor fan type				Propeller fan			
Air flow volume			m^3/h	3,000			
Fan motor output			W	63			
Compressor	Model			PH330X3-4MS		YH330X3-MS	
	Output		kW	2.2		2.2	
Safety device				High pressure switch, Fuse, Bimetal thermostat, Crankcase heater, Inner overload relay		High pressure switch, Fuse, Overcurrent relay, Crankcase heater, Thermostat, Return-Lock	
CEILING PANEL Model				**RBC-U262PG(W)-PE**			
Appearance colour				Silky mist (Munsell 1Y8.9/0.5)			
Dimensions	Height		mm	28			
	Width		mm	1,000			
	Depth		mm	840			
Net weight			kg	8.5			
Air filter				Washable			

Specifications are subject to change without notice.

* Note 1 : These mean actual length.

ITEM \ MODEL				RAV-362UH-PE		RAV-462UH-PE	
Cooling capacity			kW	10.0		12.5	
Heating capacity			kW	10.8		13.8	
Power source			Phase	3		3	
			V	380-415		380-415	
			Hz	50		50	
				COOLING	HEATING	COOLING	HEATING
Power consumption			kW	4.2	3.6	5.15	4.9
Power factor			%	89	87	87	88
Running current			A	6.8	6.0	8.5	8.0
Starting current			A	42		50	
Operating noise (SPL)	Indoor unit		dB (A)	50/45/42		52/47/44	
	Outdoor unit		dB (A)	55		55	
Refrigerant	Name of refrigerant			R-22		R-22	
	Charge volume		kg	3.4		3.9	
	Add. volume (20-50m)		g/m	50		50	
Refrigerant control				Capillary tube & Expansion valve		Capillary tube & Expansion valve	
Interconnection pipe	Larger side size	*2	mm	ø 19 (ø22)		ø 19 (ø22)	
	Coupler style			Flare		Flare	
	Smaller side size		mm	ø 9.5		ø 9.5	
	Coupler style			Flare		Flare	
	Standard length		m	7.5		7.5	
	Maximum length (of one way)	*1	m	50		50	
	Maximum height						
	Indoor unit height		m	20		20	
	Outdoor unit height		m	50		50	
Condensate drain pipe diameter			mm	ø 32 (OD)		ø 32 (OD)	
INDOOR UNIT Model				**RAV-362UH-PE**		**RAV-462UH-PE**	
Appearance colour				Black (zinc galvanized steel + thermal insulator)			
Dimensions	Height		mm	350		350	
	Width		mm	1,130		1,130	
	Depth		mm	740		740	
Net weight			kg	53		53	
Heat exchanger type			mm	Finned tube		Finned tube	
Indoor fan type				Centrifugal fan		Centrifugal fan	
Air volume			m^3/h	1,680		1,860	
Fan motor output			W	80		90	
Air filter				Washable		Washable	
OUTDOOR UNIT Model				**RAV-362AH8-PE**		**RAV-462AH8-PE**	
Appearance colour				Bronze white (Munsell 6Y7.5/1)		Bronze white (Munsell 6Y7.5/1)	
Dimensions	Height		mm	1,240		1,240	
	Width		mm	930		930	
	Depth		mm	385		385	
Net weight			kg	107		115	
Heat exchanger type				Finned tube		Finned tube	
Outdoor fan type				Propeller fan		Propeller fan	
Air flow volume			m^3/h	6,000		6,000	
Fan motor output			W	39+63		39+63	
Compressor	Model			YH406JA		YH506JA	
	Output		kW	3.0		3.75	
Safety device				High pressure switch, Fuse, Overload relay, Crankcase heater, Inner overload relay		High pressure switch, Fuse, Overload relay, Crankcase heater, Inner overload relay	
CEILING PANEL Model				**RBC-U462PG(W)-PE**		**RBC-U462PG(W)-PE**	
Appearance colour				Silky mist (Munsell 1Y8.9/0.5)		Silky mist (Munsell 1Y8.9/0.5)	
Dimensions	Height		mm	28		28	
	Width		mm	1,290		1,290	
	Depth		mm	840		840	
Net weight			kg	10		10	
Air filter				Washable		Washable	

Specifications are subject to change without notice.

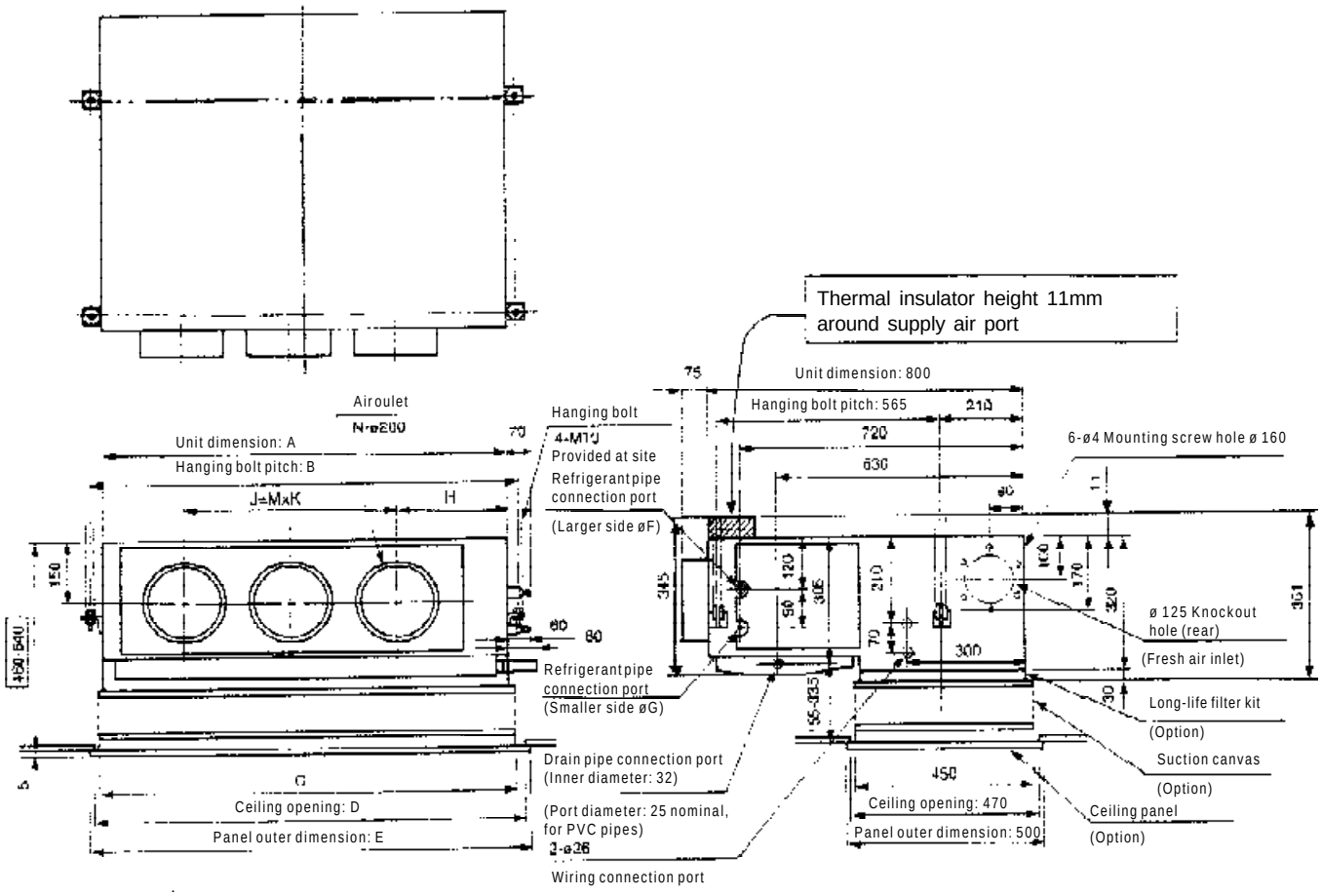
* Note 1 : These mean actual length.

* Note 2: (ø22) should be used when the length of pipe exceeds 30m.

2. CONSTRUCTION VIEWS

2.1 Indoor unit

RAV-162BH-PE
RAV-262BH-PE
RAV-362BH-PE
RAV-462BH-PE

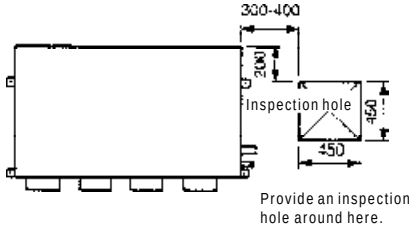


Ensure that there is sufficient space around the indoor units for installation and servicing.

(Unit: mm)

Model	A	B	F	G	H	J	K	M	N
RAV-162BH-PE	700	750	12.7	6.4	252	280	280	1	2
RAV-262BH-PE	1000	1050	15.9	9.5	252	580	290	2	3
RAV-362/462BH-P	1350	1400	19.0	9.5	252	930	310	3	4

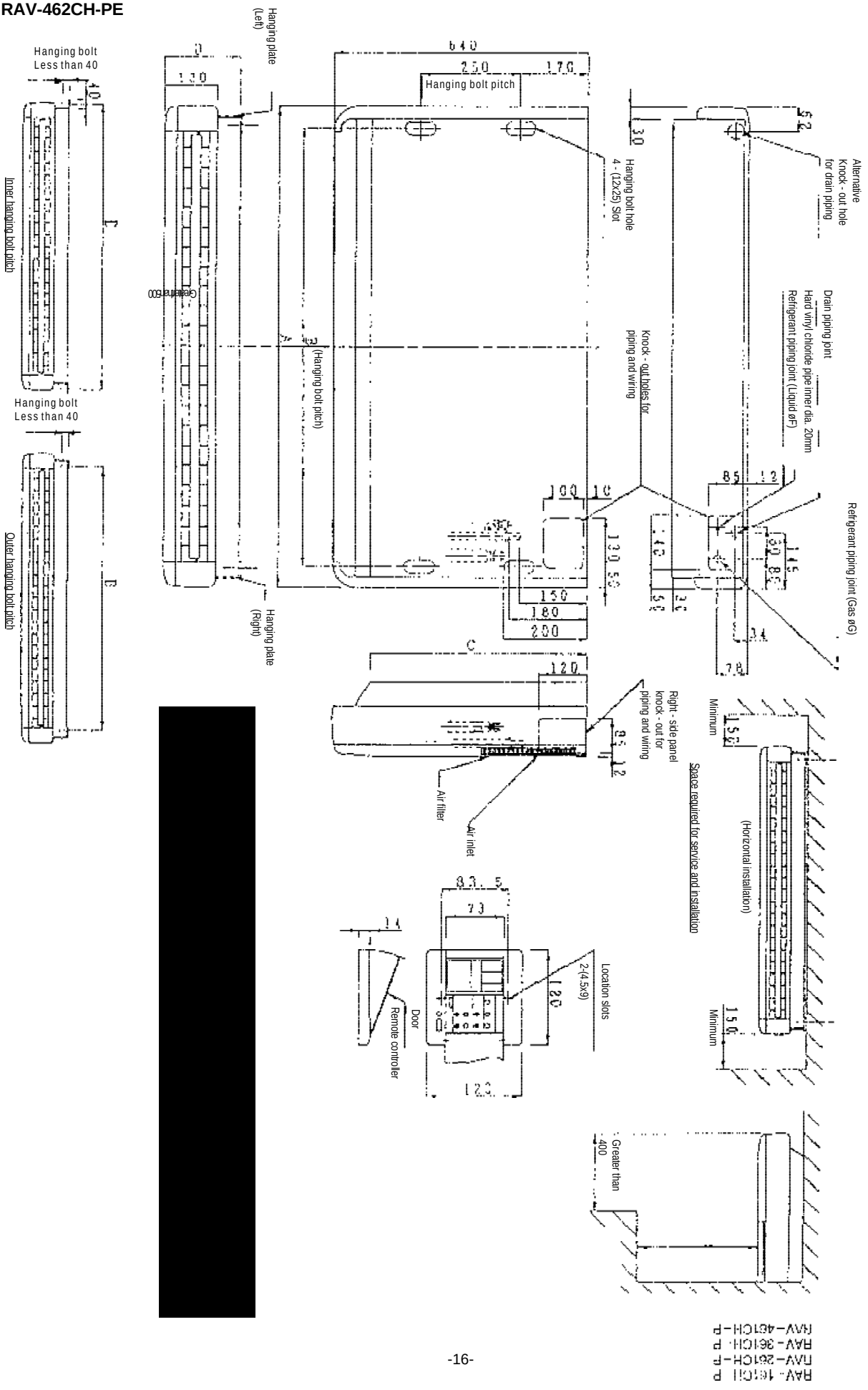
[Indoor unit]



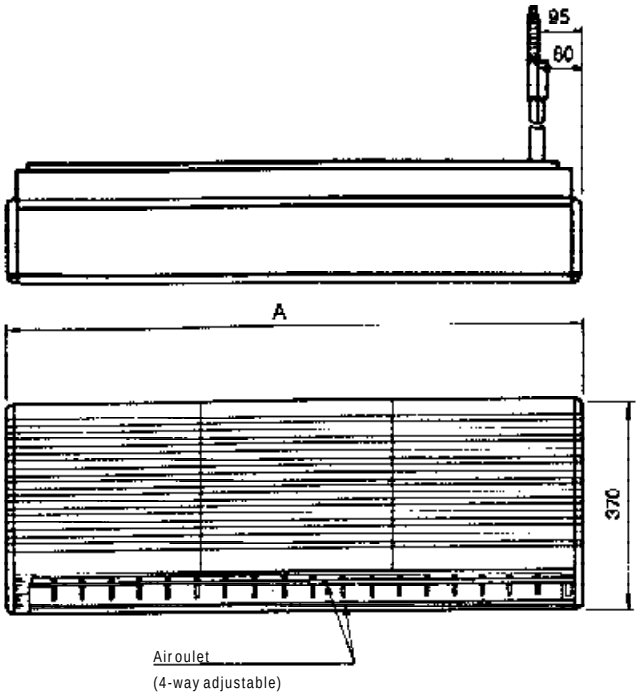
Provide an inspection hole around here.

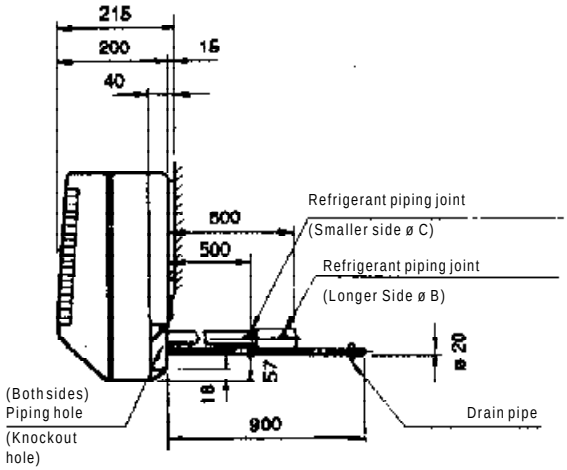
2.2 Indoor unit

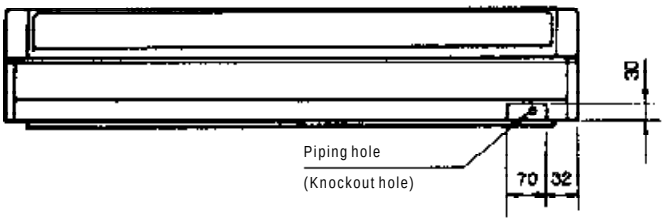
RAV-162CH-PE
RAV-262CH-PE
RAV-362CH-PE
RAV-462CH-PE

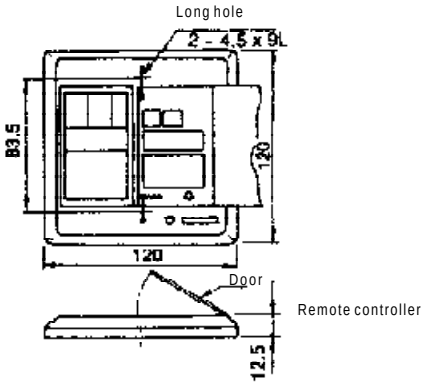


2.3 Indoor Unit
RAV-162KH(W)-PE
RAV-262KH(W)-PE



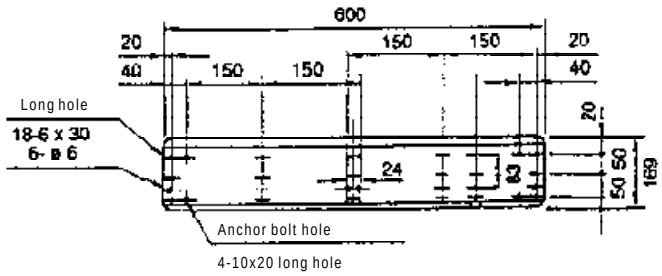




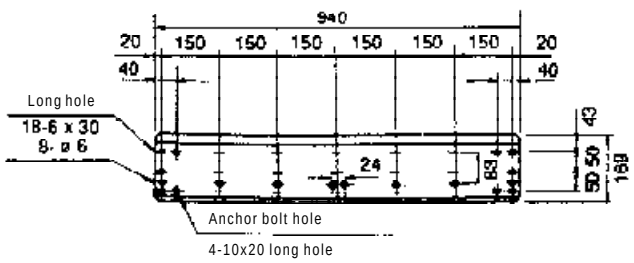


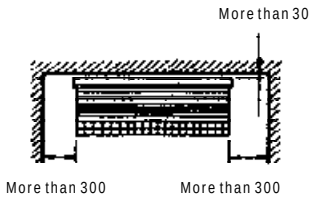
Model	A	B	C
RAV-162KH(W)-P	1020	12.7	6.4
RAV-262KH(W)-P	1350	15.9	9.5

RAV-162KH(W)-PE



RAV-262KH(W)-PE

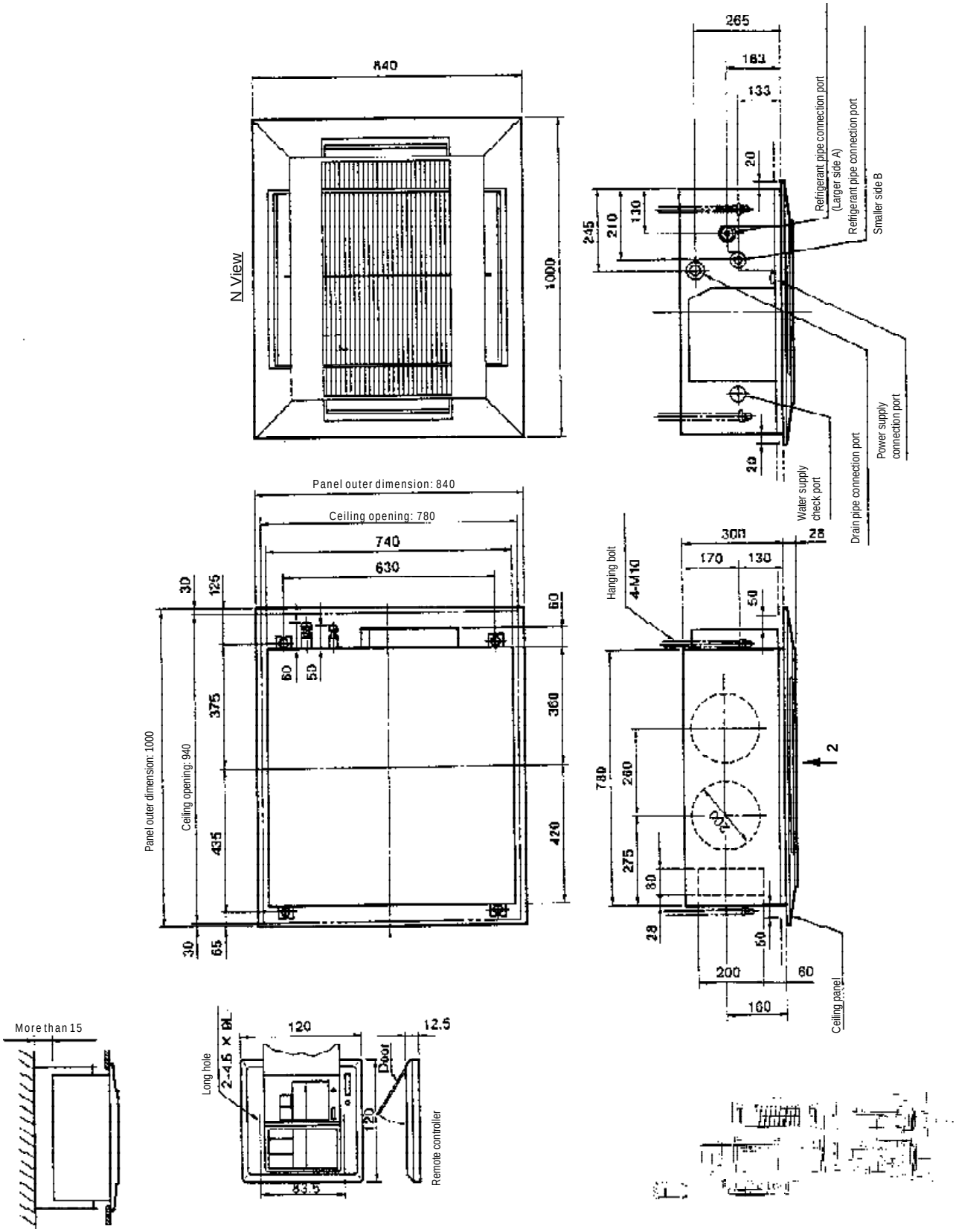




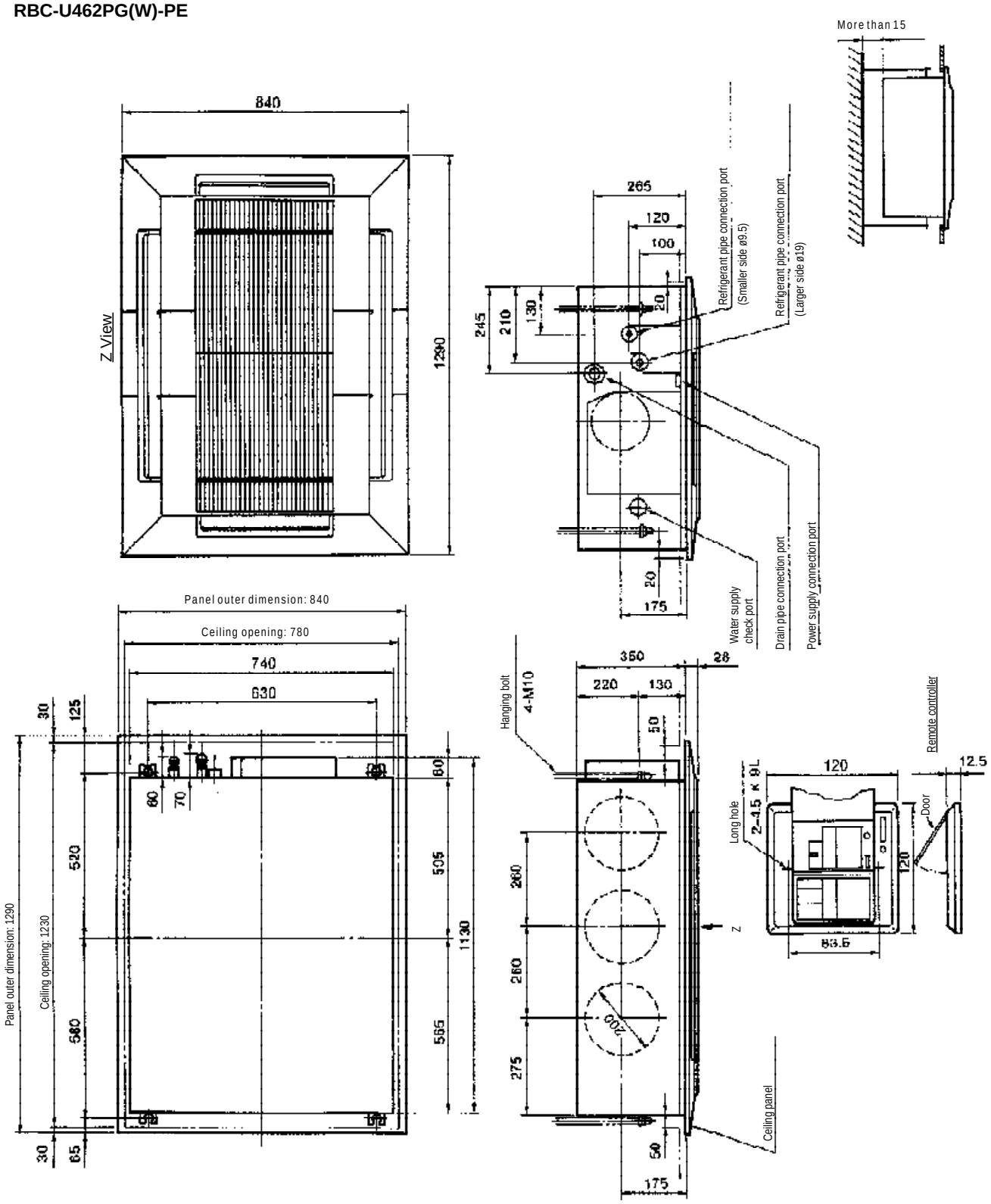
Space required for service

Installation board mounting bolt hole location

2.4 Indoor Unit
Unit model
RAV-132UH-PE
RAV-162UH-PE
RAV-262UH-PE
Panel model
RBC-262PG(W)-PE

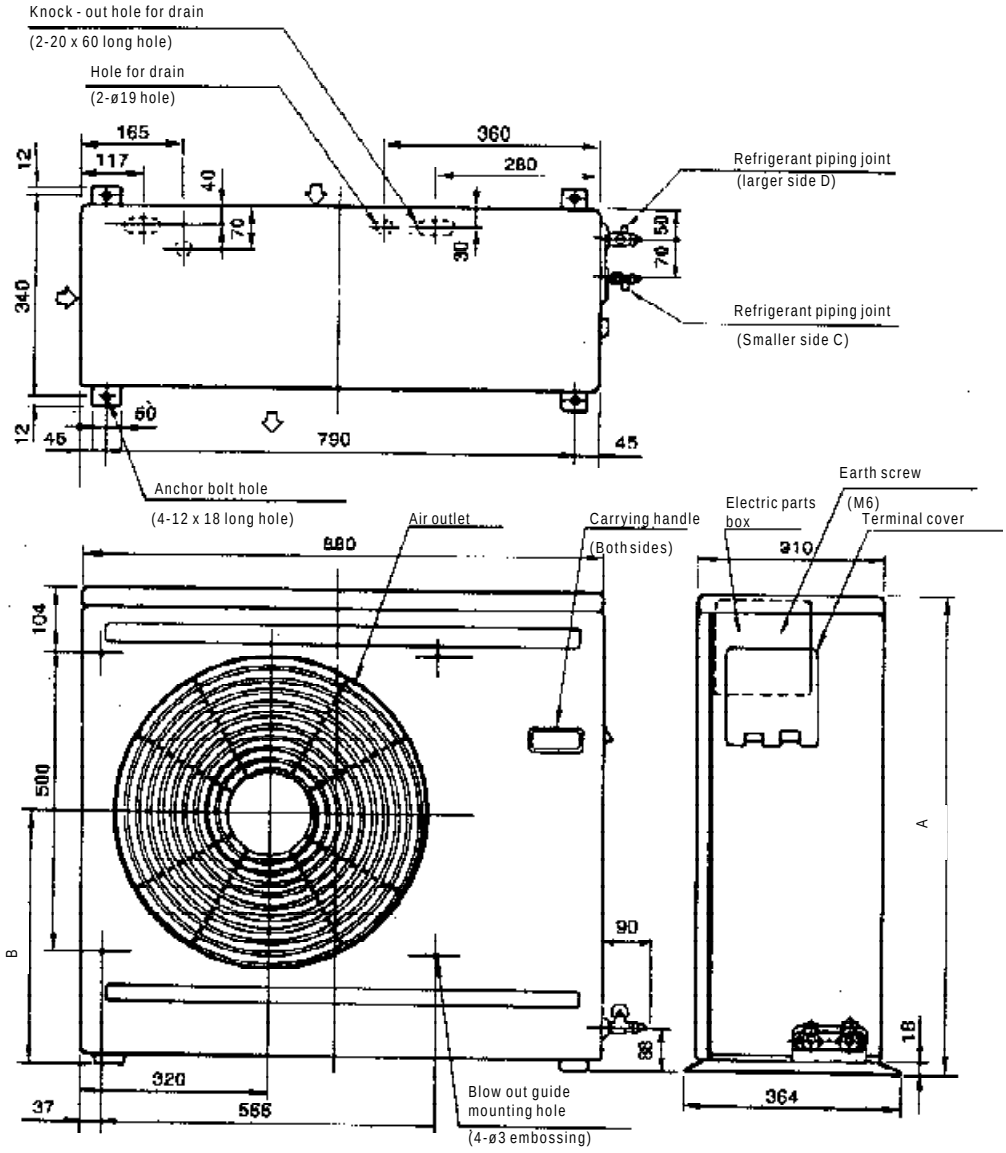


2.5 Indoor Unit
Unit model
RAV-362UH-PE
RAV-462UH-PE
Panel model
RBC-U462PG(W)-PE

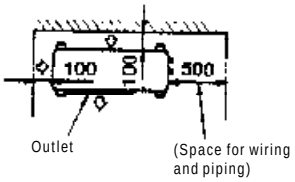


2.6 Outdoor unit

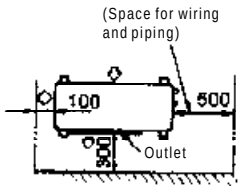
RAV-162AH-PE
RAV-262AH-PE
RAV-262AH8-PE



Space required for service



When installed with the inlet faced to the wall side

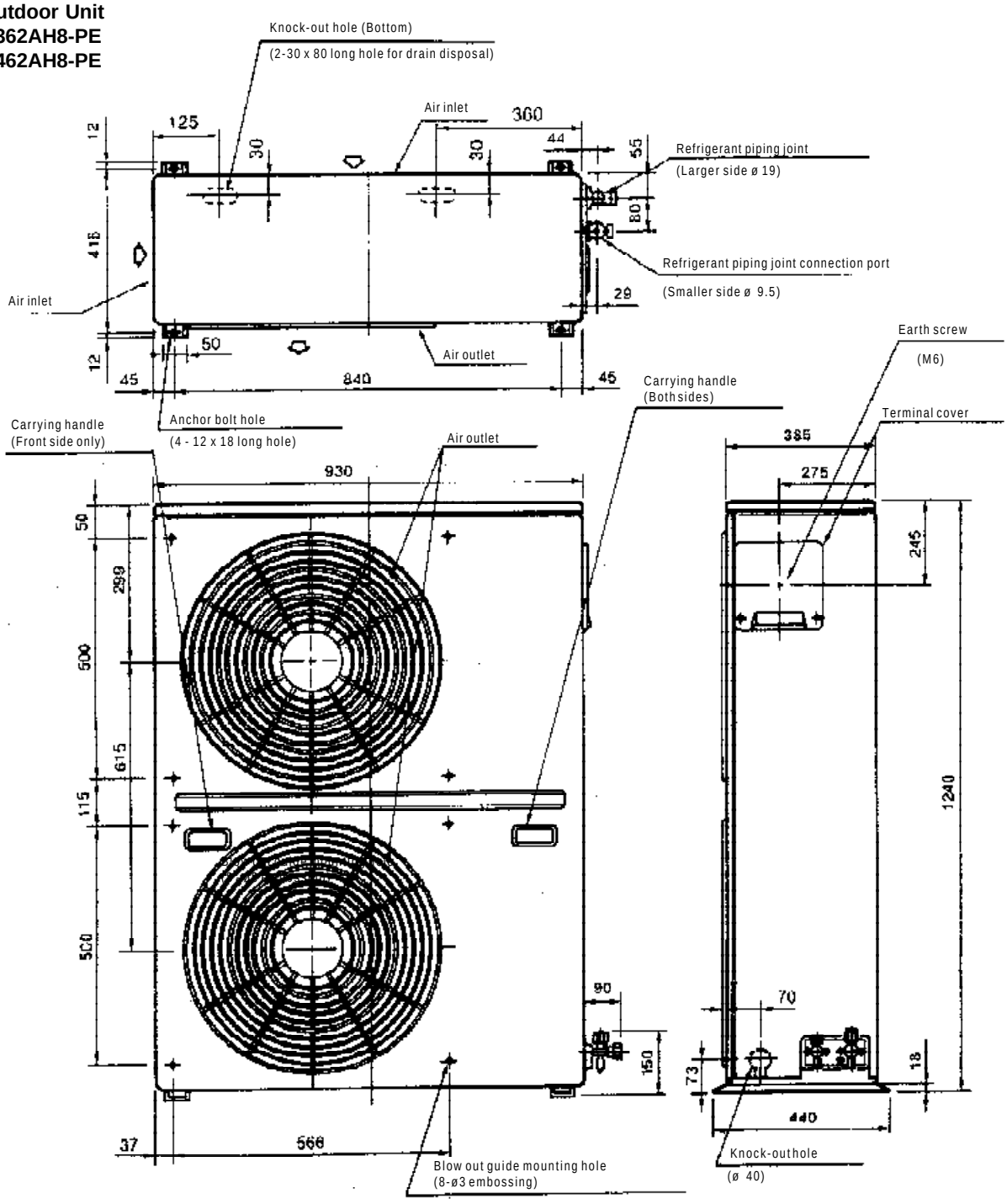


When installed with the outlet faced to the wall side

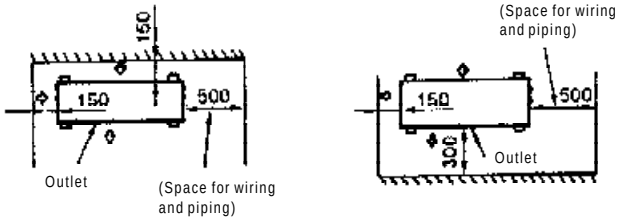
(Unit: mm)

Model	A	B	C	D
RAV-162AH-PE	740	380	ø6.4	ø12.7
RAV-262AH-PE RAV-262AH8-PE	790	430	ø9.5	ø15.9

2.7 Outdoor Unit
RAV-362AH8-PE
RAV-462AH8-PE



Space required for service

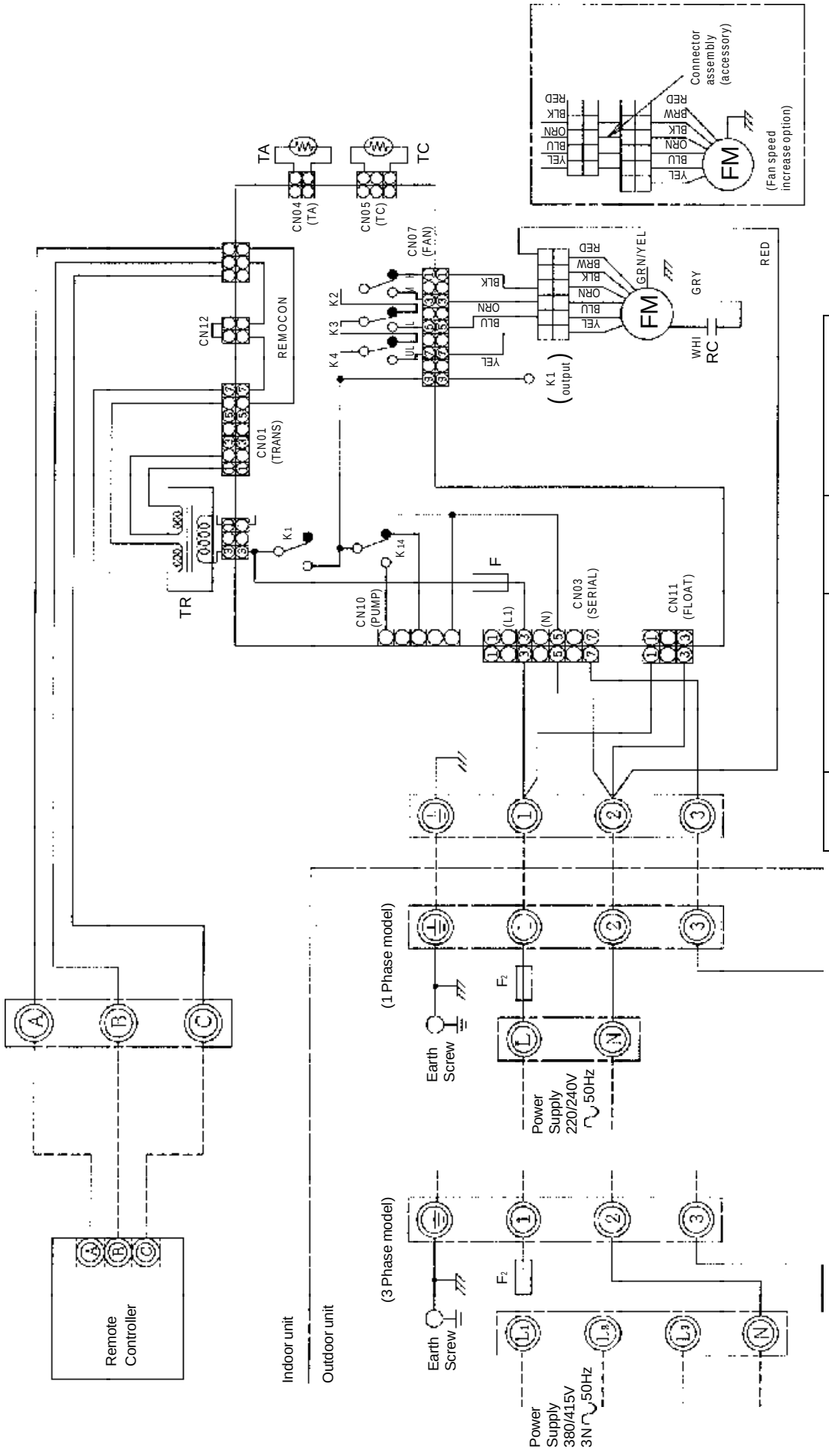


When installed with the inlet faced to the wall side

When installed with the outlet faced to the wall side

3. WIRING DIAGRAM

3.1 RAV-162BH-PE/RAV-262BH-PE
RAV-362BH-PE/RAV-462BH-PE

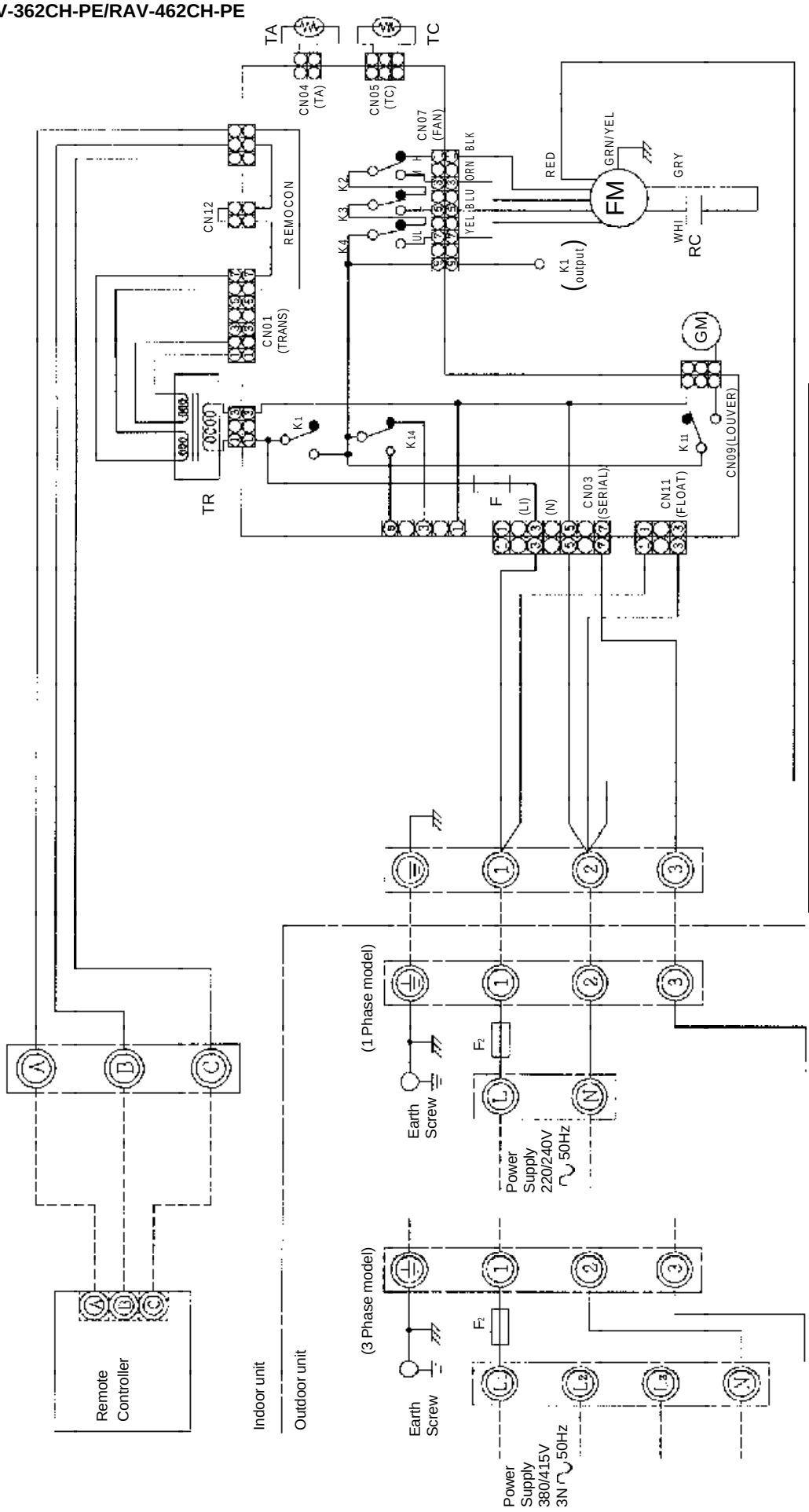


Symbol	Name	Symbol	Name
FM	Fan Motor	K 1~14	Relay
RC	Running Capacitor	TC	Sensor
TR	Transformer	TA	Sensor
F	Fuse (PCB)		

: Shows terminal block and figures show terminal numbers.
Broken lines show wiring at site.

Do not operate the units with magnetic contactor pushed in.

3.2 RAV-162CH-PE/RAV-262CH-PE
RAV-362CH-PE/RAV-462CH-PE

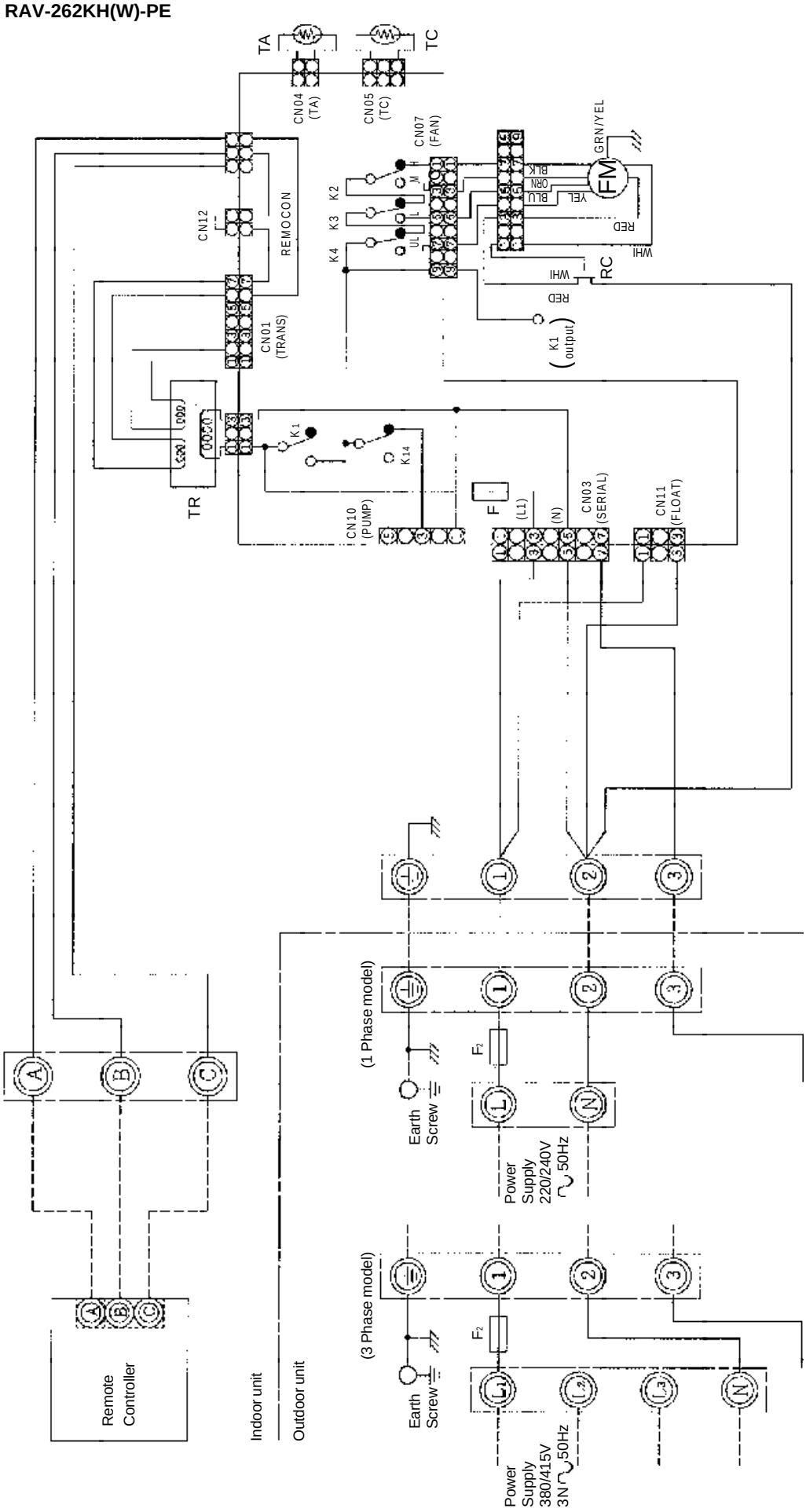


Symbol	Name	Symbol	Name
FM	Fan Motor	TA	Sensor
RC	Running Capacitor	TC	Sensor
TR	Transformer	GM	Geared Motor
F	Fuse (PCB)	K1~K14	Relay

Shows terminal block and figures show terminal numbers.
Broken lines show wiring at site.

Do not operate the units with magnetic contactor pushed in.

3.3 RAV-162KH(W)-PE
RAV-262KH(W)-PE

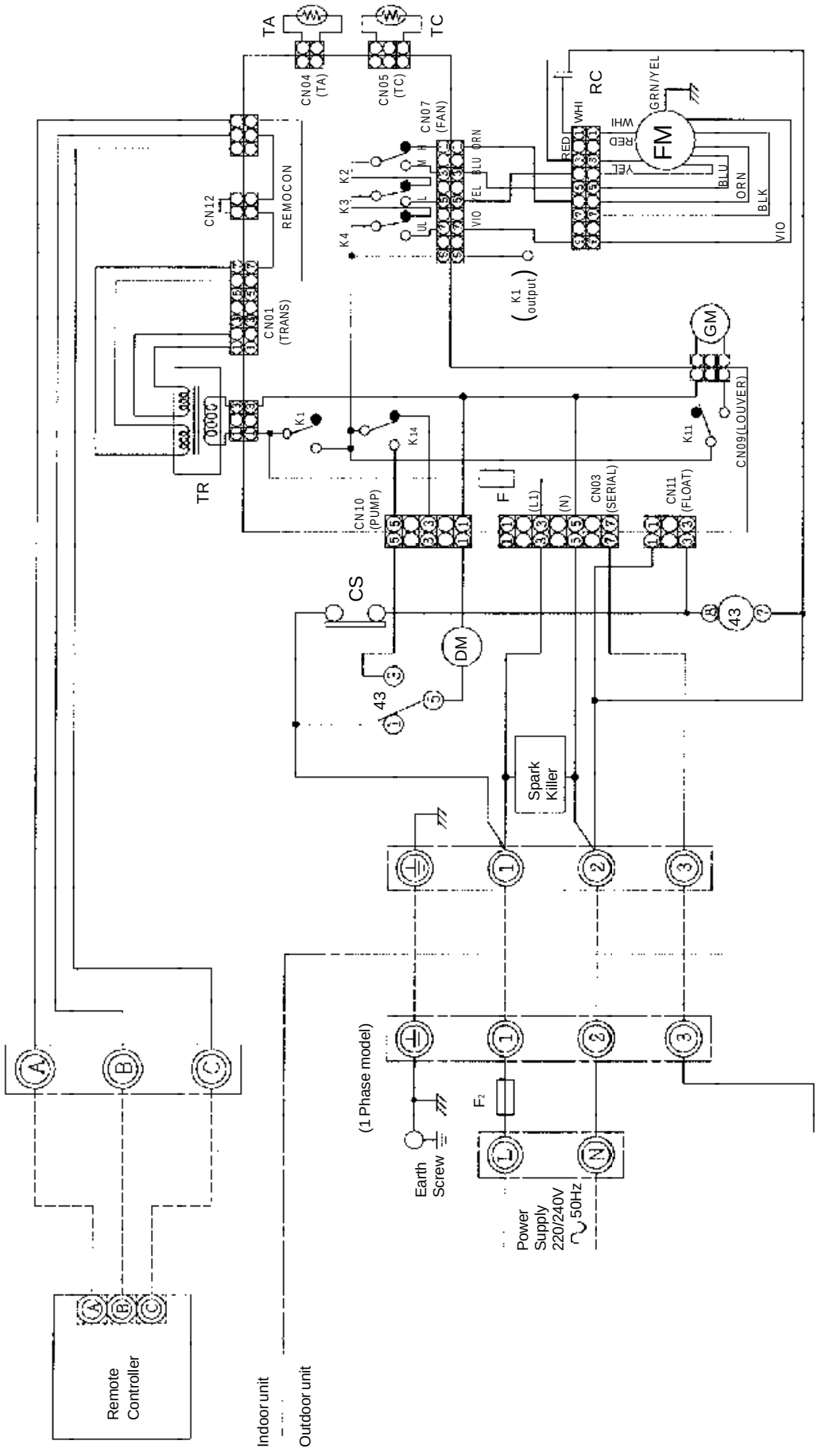


Symbol	Name	Symbol	Name
FM	Fan Motor	TA	Sensor
RC	Running Capacitor	TC	Sensor
TR	Transformer	K1~K14	Relay
F	Fuse (PCB)		

: Shows terminal block and figures show terminal numbers.
Broken lines show wiring at site.

Do not operate the units with magnetic contactor pushed in.

3.4 RAV-132UH-PE

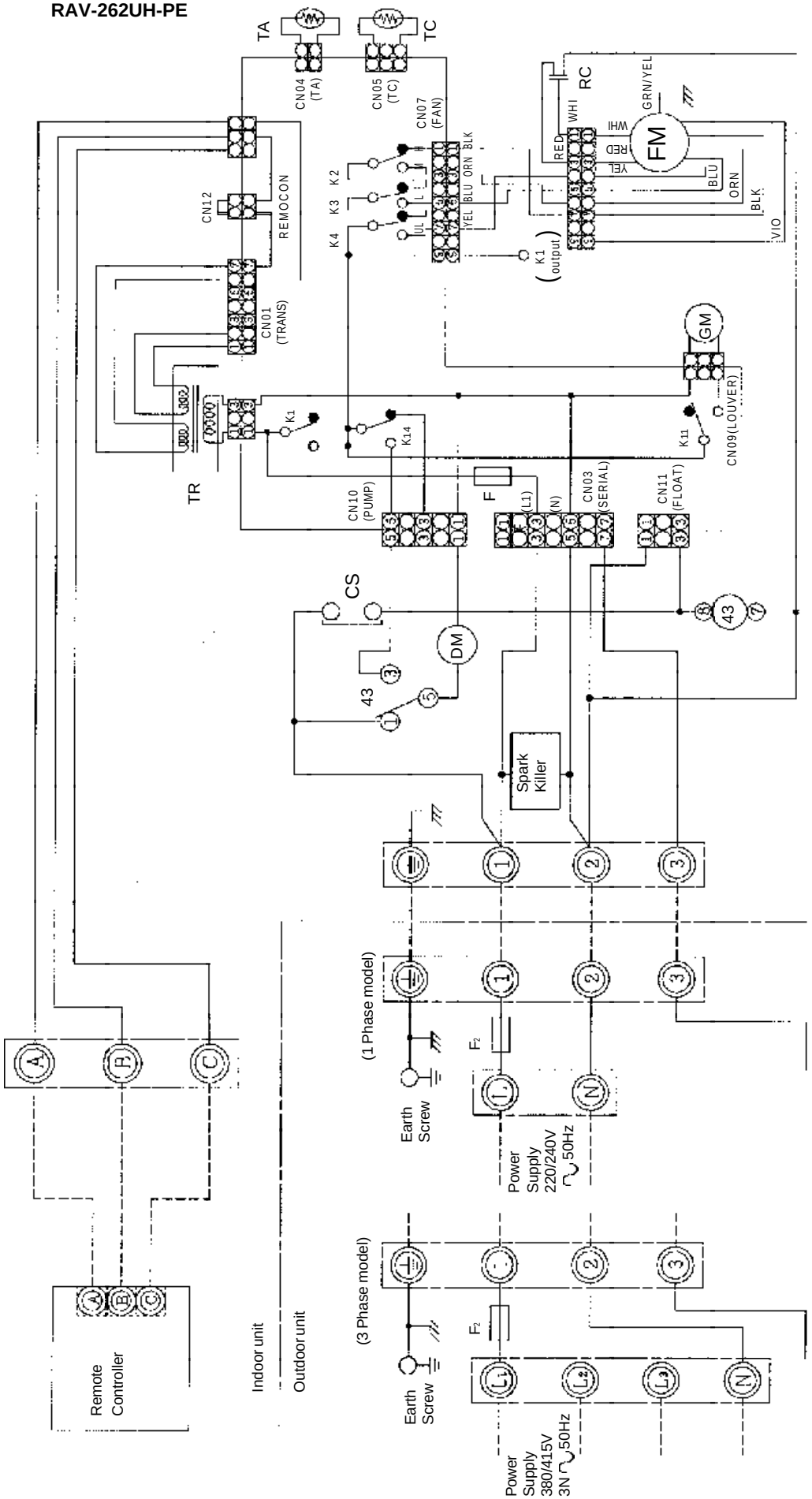


Symbol	Name	Symbol	Name
FM	Fan Motor	43	Relay
RC	Running Capacitor	K1~K14	Relay
TR	Transformer	GM	Geared Motor
TA	Sensor	CS	Float Switch
TC	Sensor	DM	Drain Motor
F	Fuse (PCB)		

Shows terminal block and figures show terminal numbers.
Broken lines show wiring at site.

Do not operate the units with magnetic contactor pushed in.

3.5 RAV-162UH-PE
RAV-262UH-PE

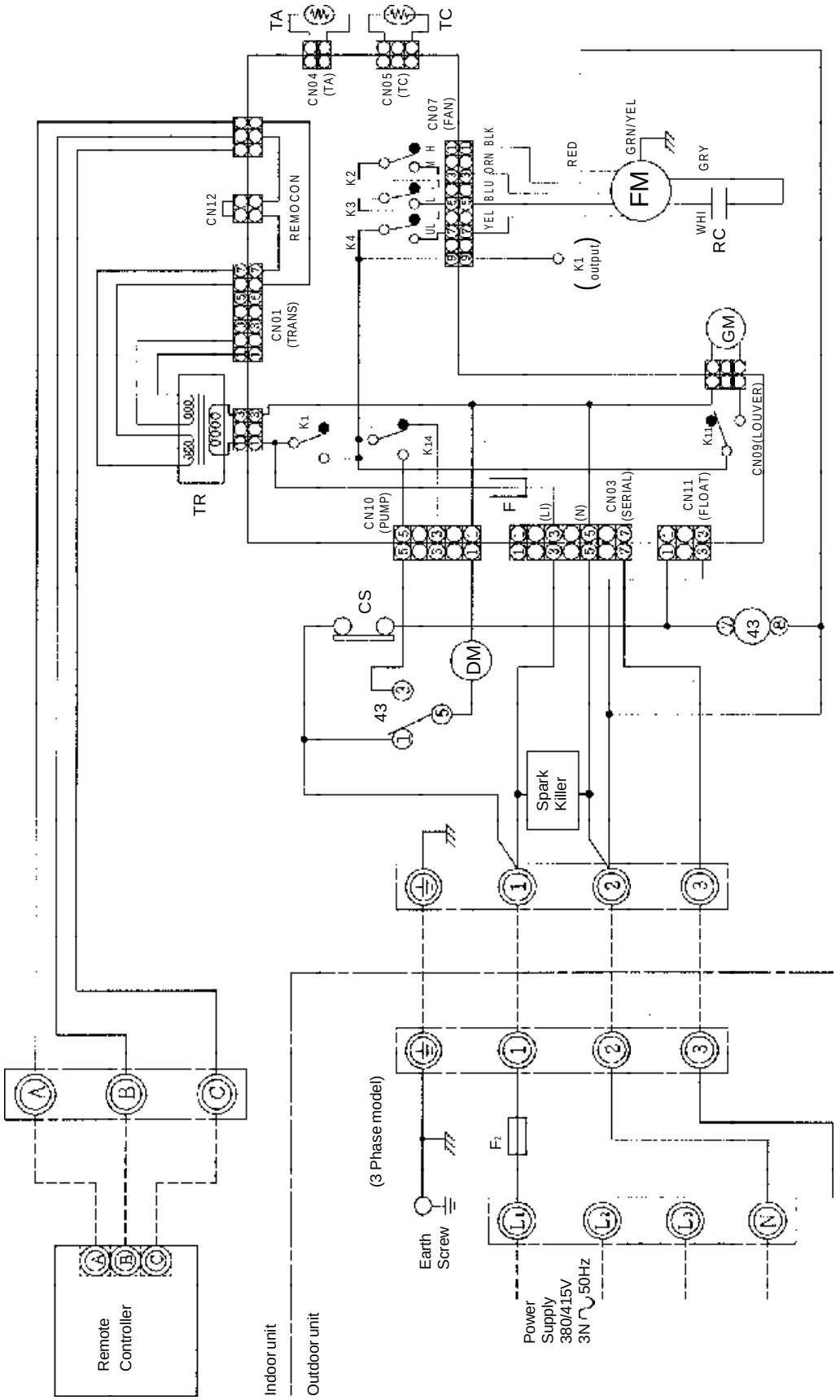


Symbol	Name	Symbol	Name
FM	Fan Motor	43	Relay
RC	Running Capacitor	K1~K14	Relay
TR	Transformer	GM	Geared Motor
TA	Sensor	CS	Float Switch
TC	Sensor	DM	Drain Motor
F	Fuse (PCB)		

: Shows terminal block and figures show terminal numbers.
Broken lines show wiring at site.

Do not operate the units with magnetic contactor pushed in.

3.6 RAV-362UH-PE
RAV-462UH-PE

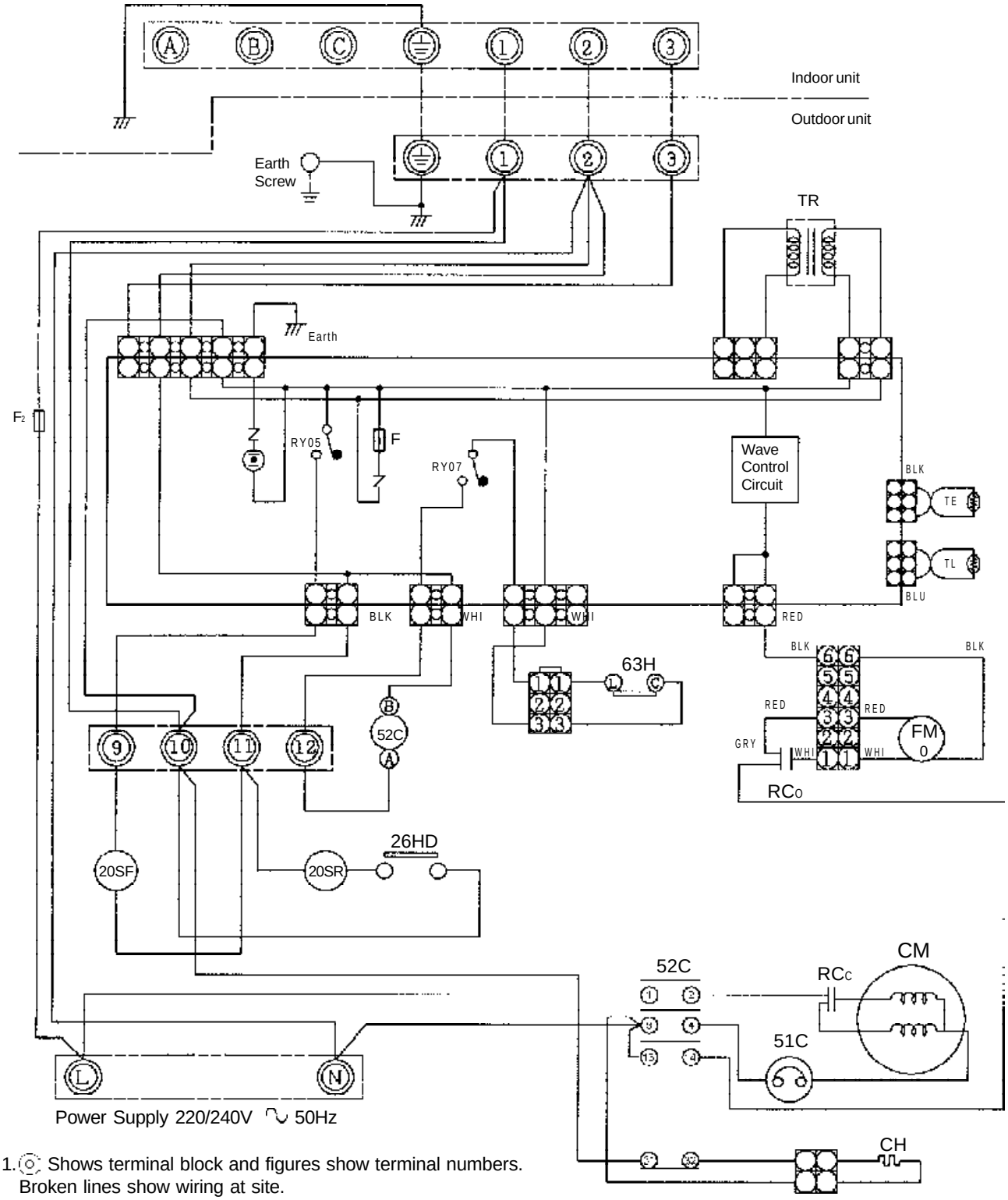


Symbol	Name	Symbol	Name
FM	Fan Motor	43	Relay
RC	Running Capacitor	K1~K14	Relay
TR	Transformer	GM	Geared Motor
TA	Sensor	CS	Float Switch
TC	Sensor	DM	Drain Motor
F	Fuse (PCB)		

Shows terminal block and figures show terminal numbers.
Broken lines show wiring at site.

Do not operate the units with magnetic contactor pushed in.

3.7 RAV-162AH-PE

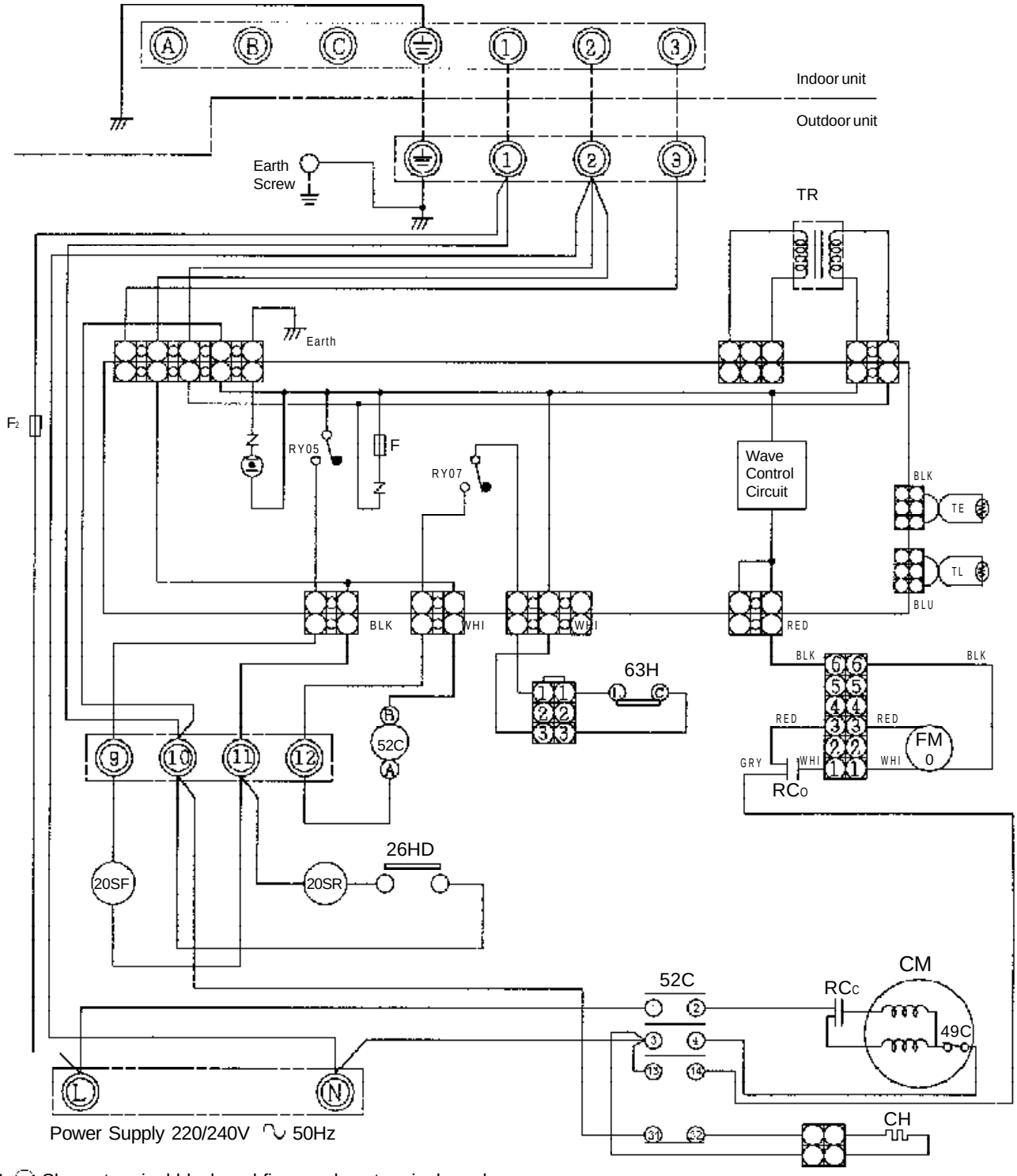


1. ⊙ Shows terminal block and figures show terminal numbers.
   Broken lines show wiring at site.

Don't operate the units with magnetic contactor pushed.

Symbol	Name	Symbol	Name	Symbol	Name
20SF	Solenoid Coil (4 Way Valve)	CM	Compressor	F2	Fuse (T5A)
RY05, 07	Relay	52C	Magnetic Contactor	63H	High Pressure Switch
51C	Overload Relay	FMo	Fan Motor (Out door)	CH	Crank Case Heater
20SR	Solenoid Coil (2 Way Valve)	TL	Sensor	F	Fuse (on PCB)
RCc	Running Capacitor (Compressor)	TE	Sensor	TR	Transformer
RCo	Running Capacitor (Fan motor)	26HD	Bimetal Thermostat		

3.8 RAV-262AH-PE

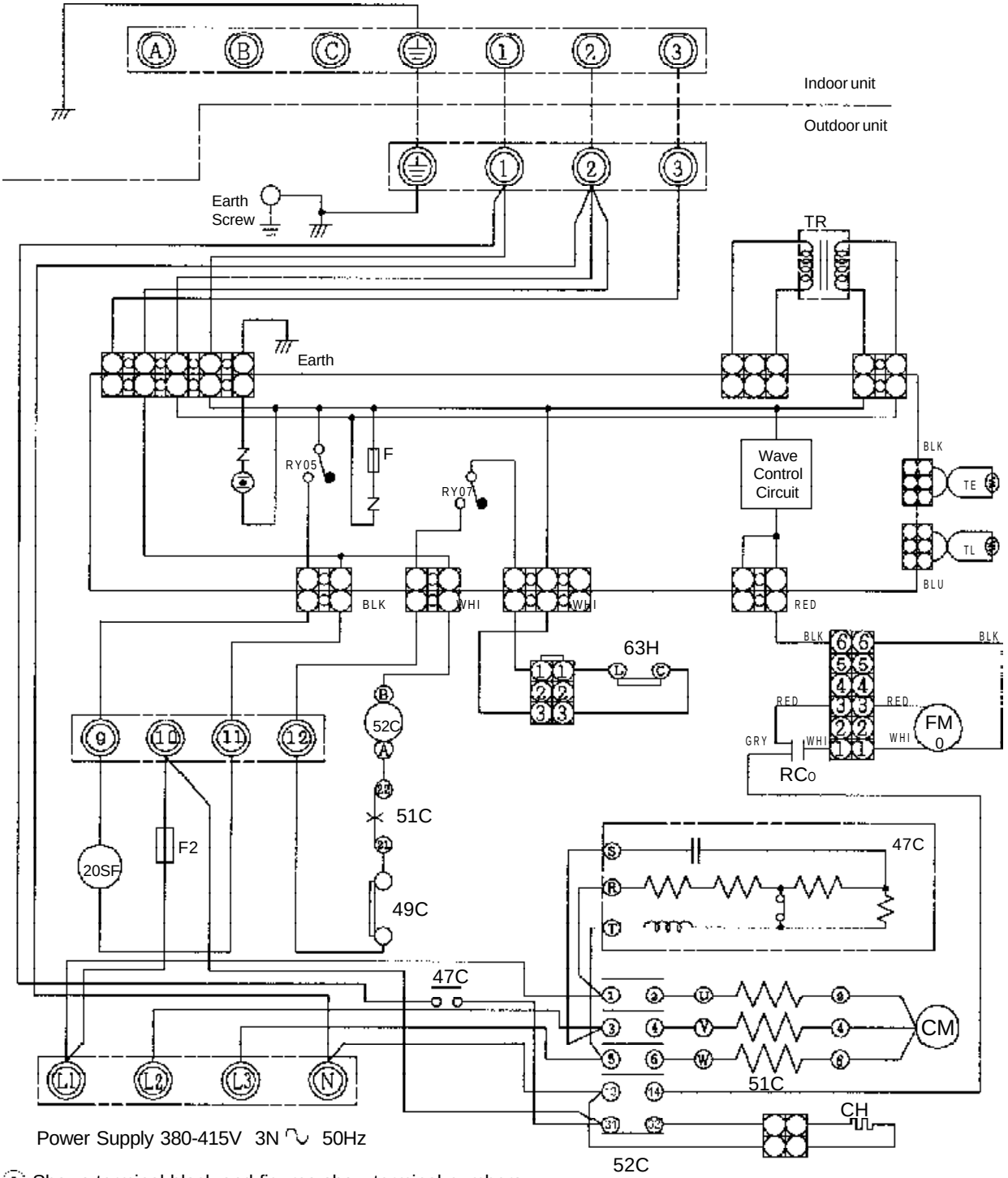


1. ⏚ Shows terminal block and figures show terminal numbers.
   Broken lines show wiring at site.

Don't operate the units with magnetic contactor pushed.

Symbol	Name	Symbol	Name	Symbol	Name
20SF	Solenoid Coil (4 Way Valve)	CM	Compressor	F2	Fuse (T5A)
RY05, 07	Relay	52C	Magnetic Contactor	63H	High Pressure Switch
49C	Inner Overload Relay	FMo	Fan Motor (Out door)	CH	Crank Case Heater
20SR	Solenoid Coil (2 Way Valve)	TL	Sensor	F	Fuse (on PCB)
RCc	Running Capacitor (Compressor)	TE	Sensor	TR	Transformer
RCo	Running Capacitor (Fan motor)	26HD	Bimetal Thermostat		

3.9 RAV-262AH8-PE

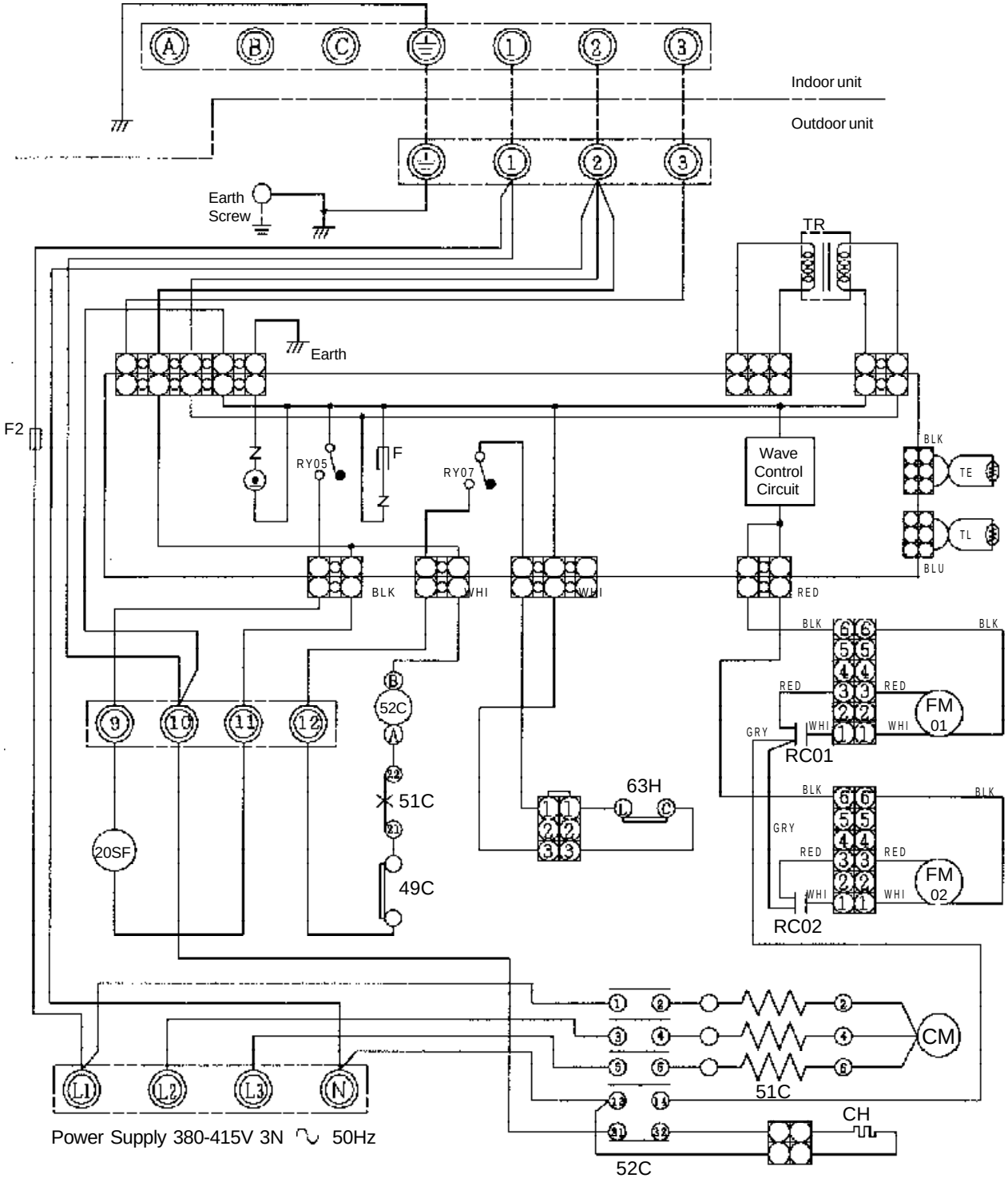


1. ⊙ Shows terminal block and figures show terminal numbers.
   Broken lines show wiring at site.
2. When the three phases are not connected correctly, the reverse phase protector operates and the unit will not start. In this case check the three phase wiring.

Don't operate the units with magnetic contactor pushed.

Symbol	Name	Symbol	Name	Symbol	Name
20SF	Solenoid Coil	CM	Compressor	F2	Fuse (T5A)
RY05, 07	Relay	52C	Magnetic Contactor	63H	High Pressure Switch
49C	Inner Overload Relay	FMo	Fan Motor (Out door)	CH	Crank Case Heater
51C	Overload Relay	TL	Sensor	F	Fuse (on PCB)
47C	Reverse Phase Protector	TE	Sensor	TR	Transformer
RCo	Running Capacitor				

3.10 RAV-362AH8-PE
RAV-462AH8-PE



1. ⊙ Shows terminal block and figures show terminal numbers.
   Broken lines show wiring at site.

Don't operate the units with magnetic contactor pushed.

Symbol	Name	Symbol	Name	Symbol	Name
20SF	Solenoid Coil	CM	Compressor	63H	High Pressure Switch
RY05, 07	Relay	52C	Magnetic Contactor	CH	Crank Case Heater
49C	Inner Overload Relay	FM01, 02	Fan Motor (Out door)	F	Fuse (on PCB)
51C	Overload Relay	TL	Sensor	TR	Transformer
RC01, 02	Running Capacitor	TE	Sensor	F2	Fuse (T5A)

4. SPECIFICATIONS OF ELECTRICAL PARTS

4.1 RAV-162BH-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor	SMF-230-60-4A	Output (Rated) 60W, 4 pole, 230V, 1 phase, 50Hz						
2	Running capacitor for indoor fan motor	EEP2G405HQA	AC 400V, 4µF						
3	Transformer (Indoor unit)	ST-9586	187~264V						
4	Sensor for room temperature		Maximum input 38mA	℃	15	20	25	30	40
				Kw	16.1	12.6	10.0	8.0	5.2
5	Indoor unit sensor for heat-exchanger temp.	DTN-C103J40	Maximum input 34mA	℃	–12	0	25	50	
				Kw	62.29	32.82	10.0	3.59	

4.2 RAV-262BH-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor	STF-200-100-4	Output (Rated) 100W, 4 pole, 200V, 1 phase, 50Hz						
2	Running capacitor for indoor fan motor	EAG40M505UF	AC 400V, 5µF						
3	Transformer (Indoor unit)	ST-9586	187~264V						
4	Sensor for room temperature		Maximum input 38mA	℃	15	20	25	30	40
				Kw	16.1	12.6	10.0	8.0	5.2
5	Indoor unit sensor for heat-exchanger temp.	DTN-C103J40	Maximum input 34mA	℃	–12	0	25	50	
				Kw	62.29	32.82	10.0	3.59	

4.3 RAV-362BH-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor	STF-200-120-4	Output (Rated) 120W, 4 pole, 200V, 1 phase, 50Hz						
2	Running capacitor for indoor fan motor	EAG40M505UF	AC 400V, 5µF						
3	Transformer (Indoor unit)	ST-9586	187~264V						
4	Sensor for room temperature		Maximum input 38mA	℃	15	20	25	30	40
				Kw	16.1	12.6	10.0	8.0	5.2
5	Indoor unit sensor for heat-exchanger temp.	DTN-C103J40	Maximum input 34mA	℃	–12	0	25	50	
				Kw	62.29	32.82	10.0	3.59	

4.4 RAV-462BH-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor	STF-200-140-4F	Output (Rated) 140W, 4 pole, 200V, 1 phase, 50Hz						
2	Running capacitor for indoor fan motor	EAG40M106UF	AC 400V, 10µF						
3	Transformer (Indoor unit)	ST-9586	187~264V						
4	Sensor for room temperature		Maximum input 38mA	℃	15	20	25	30	40
				Kw	16.1	12.6	10.0	8.0	5.2
5	Indoor unit sensor for heat-exchanger temp.	DTN-C103J40	Maximum input 34mA	℃	–12	0	25	50	
				Kw	62.29	32.82	10.0	3.59	

4.5 RAV-162CH-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor	SMF-230-34-4E	Output (Rated) 34W, 4 pole, 230V, 1 phase, 50Hz						
2	Running capacitor for indoor fan motor	EEP2W255HQ	AC 400V, 2.5µF						
3	Transformer (Indoor unit)	ST-9586	187~264V						
4	Geared motor	MT8-3-6	AC 240V, 3W						
5	Sensor for room temperature		Maximum input 38mA	℃	15	20	25	30	40
				Kw	16.1	12.6	10.0	8.0	5.2
6	Indoor unit sensor for heat-exchanger temp.	DTN-C103J40	Maximum input 34mA	℃	–12	0	25	50	
				Kw	62.29	32.82	10.0	3.59	

4.6 RAV-262CH-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor	SMF-230-34-4D	Output (Rated) 34W, 4 pole, 230V, 1 phase, 50Hz						
2	Running capacitor for indoor fan motor	EEP2W255HQ	AC 400V, 2.5µF						
3	Transformer (Indoor unit)	ST-9586	187~264V						
4	Geared motor	MT8-3-6	AC 240V, 3W						
5	Sensor for room temperature		Maximum input 38mA	℃	15	20	25	30	40
				Kw	16.1	12.6	10.0	8.0	5.2
6	Indoor unit sensor for heat-exchanger temp.	DTN-C103J40	Maximum input 34mA	℃	–12	0	25	50	
				Kw	62.29	32.82	10.0	3.59	

4.7 RAV-362CH-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor	SMF-230-75-4U	Output (Rated) 75W, 4 pole, 230V, 1 phase, 50Hz						
2	Running capacitor for indoor fan motor	EEP2W255HQ	AC 400V, 2.5µF						
3	Transformer (Indoor unit)	ST-9586	187~264V						
4	Geared motor	MT8-3-6	AC 240V, 3W						
5	Sensor for room temperature		Maximum input 38mA	℃	15	20	25	30	40
				Kw	16.1	12.6	10.0	8.0	5.2
6	Indoor unit sensor for heat-exchanger temp.	DTN-C103J40	Maximum input 34mA	℃	–12	0	25	50	
				Kw	62.29	32.82	10.0	3.59	

4.8 RAV-462CH-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor	SMF-230-75-4B	Output (Rated) 75W, 4 pole, 230V, 1 phase, 50Hz						
2	Running capacitor for indoor fan motor	EVM45M305UF	AC 400V, 3µF						
3	Transformer (Indoor unit)	ST-9586	187~264V						
4	Geared motor	MT8-3-6	AC 240V, 3W						
5	Sensor for room temperature		Maximum input 38mA	℃	15	20	25	30	40
				Kw	16.1	12.6	10.0	8.0	5.2
6	Indoor unit sensor for heat-exchanger temp.	DTN-C103J40	Maximum input 34mA	℃	–12	0	25	50	
				Kw	62.29	32.82	10.0	3.59	

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4.9 RAV-162KH(W)-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor	AF-230-27-4P	Output (Rated) 27W, 4 pole, 230V, 1 phase, 50Hz						
2	Running capacitor for indoor fan motor	EEP2H155HQA	AC 400V, 1.5μF						
3	Transformer (Indoor unit)	ST-9586	187~264V						
4	Sensor for room temperature		Maximum input 38mA	℃	15	20	25	30	40
				Kw	16.1	12.6	10.0	8.0	5.2
5	Indoor unit sensor for heat-exchanger temp.	DTN-C103J40	Maximum input 34mA	℃	–12	0	25	50	
				Kw	62.29	32.82	10.0	3.59	

4.10 RAV-262KH(W)-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor	AF-230-27-4R	Output (Rated) 27W, 4 pole, 230V, 1 phase, 50Hz						
2	Running capacitor for indoor fan motor	EEP2H155HQA	AC 400V, 1.5μF						
3	Transformer (Indoor unit)	ST-9586	187~264V						
4	Sensor for room temperature		Maximum input 38mA	℃	15	20	25	30	40
				Kw	16.1	12.6	10.0	8.0	5.2
5	Indoor unit sensor for heat-exchanger temp.	DTN-C103J40	Maximum input 34mA	℃	–12	0	25	50	
				Kw	62.29	32.82	10.0	3.59	

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4.11 RAV-132UH-PE, RAV-162UH-PE, RAV-262UH-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor	SMF-230-45A	Output (Rated) 45W, 6 pole, 1 phase, 230V, 50Hz						
2	Running capacitor for indoor fan motor	EVM45M305UF	AC 400V, 2.5μF						
3	Transformer for Indoor unit	ST-9586	AC187~264V						
4	Relay	LY2F	AC240V, 2ab						
5	Geared motor	MT8-3-3	AC 240V, 3W						
6	Drain pump	PAD-416A34TF	AC230V, 0.2A						
7	Float switch	FS-085-003B	AC230V, 0.5A						
8	Sensor for room temperature		Maximum input 38mA	℃	15	20	25	30	40
				Kw	16.1	12.6	10.0	8.0	5.2
9	Indoor unit sensor for heat-exchanger temp.	DTN-C103J40	Maximum input 34mA	℃	–12	0	25	50	
				Kw	62.29	32.82	10.0	3.59	

4.12 RAV-362UH-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor	SMF-230-90-4A	Output (Rated) 90W, 6 pole, 1 phase, 230V, 50Hz						
2	Running capacitor for indoor fan motor	EVM45M305UF	AC 450V, 3μF						
3	Transformer for Indoor unit	ST-9586	AC187~264V						
4	Relay	LY2F	AC240V, 2ab						
5	Geared motor	MT8-3-3	AC 240V, 3W						
6	Drain pump	PAD-416A34TF	AC230V, 0.2A						
7	Float switch	FS-085-003B	AC230V, 0.5A						
8	Sensor for room temperature		Maximum input 38mA	℃	15	20	25	30	40
				Kw	16.1	12.6	10.0	8.0	5.2
9	Indoor unit sensor for heat-exchanger temp.	DTN-C103J40	Maximum input 34mA	℃	–12	0	25	50	
				Kw	62.29	32.82	10.0	3.59	

4.13 RAV-462UH-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor	SMF-230-90-4A	Output (Rated) 90W, 6 pole, 1 phase, 230V, 50Hz						
2	Running capacitor for indoor fan motor	EEP2G405HQ1	AC 400V, 4μF						
3	Transformer for Indoor unit	ST-9586	AC187~264V						
4	Relay	LY2F	AC240V, 2ab						
5	Geared motor	MT8-3-3	AC 240V, 3W						
6	Drain pump	PAD-416A34TF	AC230V, 0.2A						
7	Float switch	FS-085-003B	AC230V, 0.5A						
8	Sensor for room temperature		Maximum input 38mA	℃	15	20	25	30	40
				Kw	16.1	12.6	10.0	8.0	5.2
9	Indoor unit sensor for heat-exchanger temp.	DTN-C103J40	Maximum input 34mA	℃	–12	0	25	50	
				Kw	62.29	32.82	10.0	3.59	

4.14 RAV-162AH-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS			
1	Compressor	PH250X3-4LS	Output (Rated) 2.0 kW, 2 pole, 220/240V, 1 phase, 50Hz			
2	Outdoor unit fan motor	SMF-230-39N-2	Output (Rated) 39W, 6 pole, 230V, 1 phase, 50Hz			
3	Running capacitor for outdoor fan motor	EEP2G405HQ	AC 400V, 4 µF			
4	Magnetic contactor	FMca-1S	AC 220-240V, 50Hz			
5	High pressure switch	ACB-2TBO4W	Tripping pressure 30kg/cm²G Resetting pressure 23kg/cm²G			
6	Soleniod coil for four-way valve	CHV-AC240V	AC 220-240V			
7	Crankcase heater		AC 240V, 28W			
8	Sensor for defrosting		Maximum input 15.5mA	°C Kw	–12 67.5	10 21.3
9	Fuse		5A			
10	Sensor for cooling operation in low ambient temperature		Maximum input 15.5mA	°C Kw	–12 67.5	10 21.3
11	Soleniod coil for two-way valve	NEV AC 240V	AC 220-240V, 50Hz			
12	Running capacitor for compressor	MT-44MP456W	AC 440V 45µF			
13	Transformer (Outdoor unit)	FT-67	187-264V			
14	Overload relay	OL-177GM15	AC 240V, Tripping temp: 165°C, Resetting temp: 80°C			

4.15 RAV-262AH-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS			
1	Compressor	PH330X3-4MS	Output (Rated) 2.2 kW, 2 pole, 3 phase, 220/240V, 50Hz			
2	Outdoor unit fan motor	SMF-230-63N-2	Output (Rated) 63W, 6 pole, 1 phase, 230V, 50Hz			
3	Running capacitor for outdoor fan motor	EEP2G405HQ	AC 400V, 4μF			
4	Magnetic contactor	FMca-1S	AC 220~240V, 50Hz			
5	High pressure switch	ACB-2TBO4W	Tripping pressure 30kg/cm²G Resetting pressure 23kg/cm²G			
6	Soleniod coil for four-way valve	CHV-AC240V	AC 220~240V			
7	Crankcase heater		AC 240V, 28W			
8	Sensor for defrosting		Maximum input 15.5mA	°C Kw	–12 67.5	10 21.3
9	Fuse		5A			
10	Sensor for cooling operation in low ambient temperature		Maximum input 15.5mA	°C Kw	–12 67.5	10 21.3
11	Bimetal thermostat	CS-7	Tripping temp: 110°C Resetting temp: 90°C			
12	Solenoid coil for two-way valve	NEV202DXF	AC 220-240V, 50Hz			
13	Transformer for outdoor unit	FT-67	AC 187~264V			

4.16 RAV-262AH8-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS			
1	Compressor	YH330X3-MS	Output (Rated) 2.2kW, 2 pole, 380~415V, 3 phase, 50Hz			
2	Outdoor unit fan motor	SMF-230-63N-2	Output (Rated) 39W, 6 pole, 230V, 1 phase, 50Hz			
3	Running capacitor for outdoor fan motor	EEP2G405HQ	AC 400V, 4 µF			
4	Magnetic contactor	FMSA-1	AC 220V~240V, 50Hz, Tripping current: 7.5A, Resetting manual			
5	High pressure switch	ACB-2TBO4W	Tripping pressure 30kg/cm²G Resetting pressure 23kg/cm²G			
6	Soleniod coil for four-way valve	CHV-AC240V	AC 220~240V			
7	Crankcase heater		AC 240V, 28W			
8	Sensor for defrosting		Maximum input 15.5mA	°C Kw	–12 67.5	10 21.3
9	Fuse		5A			
10	Sensor for cooling operation in low ambient temperature		Maximum input 15.5mA	°C Kw	–12 67.5	10 21.3
11	Thermostat	CS-7	Tripping temp: 120°C, Resetting temp: 90°C			
12	Transformer	FT-67	AC 187~264V			

4.17 RAV-362AH8-PE

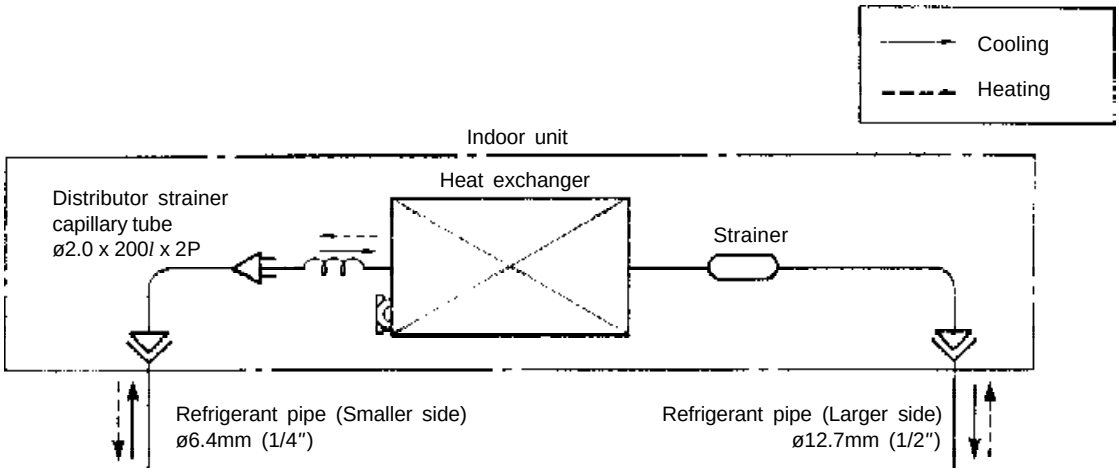
No.	PARTS NAME	TYPE	SPECIFICATIONS			
1	Compressor	YH406JA	Output (Rated) 3.0 kW, 2 pole, 3 phase 380/415V, 50Hz			
			Winding resistance 2.88 ω at 20°C			
2	Outdoor unit fan motor	SMF-230-63N-2	Output (Rated) 63W, 6 pole, 1 phase, 230V, 50Hz			
		SMF-230-39N-2	Output (Rated) 39W, 6 pole, 1 phase, 230V, 50Hz			
3	Running capacitor for outdoor fan motor	EEP2G405HQA114	AC 400V, 4 µF			
4	Magnetic contactor	FMSA-1	AC 230V, 50Hz, Tripping current 9A, Resetting manual			
5	High pressure switch	ACB-2TBO4W	Tripping pressure 30kg/cm²G Resetting pressure 23kg/cm²G			
6	Soleniod coil	CHV-AC240V	AC 220~240V			
7	Crankcase heater		AC 240V, 58W			
8	Outdoor unit sensor for heat-exchanger temp.		Maximum input 15.5mA	°C	–12	10
				Kw	67.5	21.3
9	Transformer for outdoor unit	FT-67	AC 187~264V			
10	Fuse		5A			
11	Sensor for cooling operation in low ambient temperature		Maximum input 15.5mA	°C	–12	10
				Kw	67.5	21.3

4.18 RAV-462AH8-PE

No.	PARTS NAME	TYPE	SPECIFICATIONS			
1	Compressor	YH506JA	Output (Rated) 3.75kW, 2 pole, 3 phase, 380/415V, 50Hz			
			Winding resistance 2.29w at 20°C			
2	Outdoor unit fan motor	SMF-230-63N-2	Output (Rated) 63W, 6 pole, 1 phase, 230V, 50Hz			
		SMF-230-39N-2	Output (Rated) 39W, 6 pole, 1 phase, 230V, 50Hz			
3	Running capacitor for outdoor fan motor	EEP2G405HQA114	AC 400V, 4 µF			
4	Magnetic contactor	FMSA-1	AC 230V, 50Hz, Tripping current 12A, Resetting manual			
5	High pressure switch	ACB-2TBO4W	Tripping pressure 30kg/cm²G Resetting pressure 23kg/cm²G			
6	Soleniod coil	CHV-AC240V	AC 220~240V			
7	Crankcase heater		AC 240V, 58W			
8	Outdoor unit sensor for heat-exchanger temp.		Maximum input 15.5mA	℃	–12	10
				Kw	67.5	21.3
9	Transformer for outdoor unit	FT-67	AC 187~264V			
10	Fuse		5A			
11	Sensor for cooling operation in low ambient temperature		Maximum input 15.5mA	℃	–12	10
				Kw	67.5	21.3

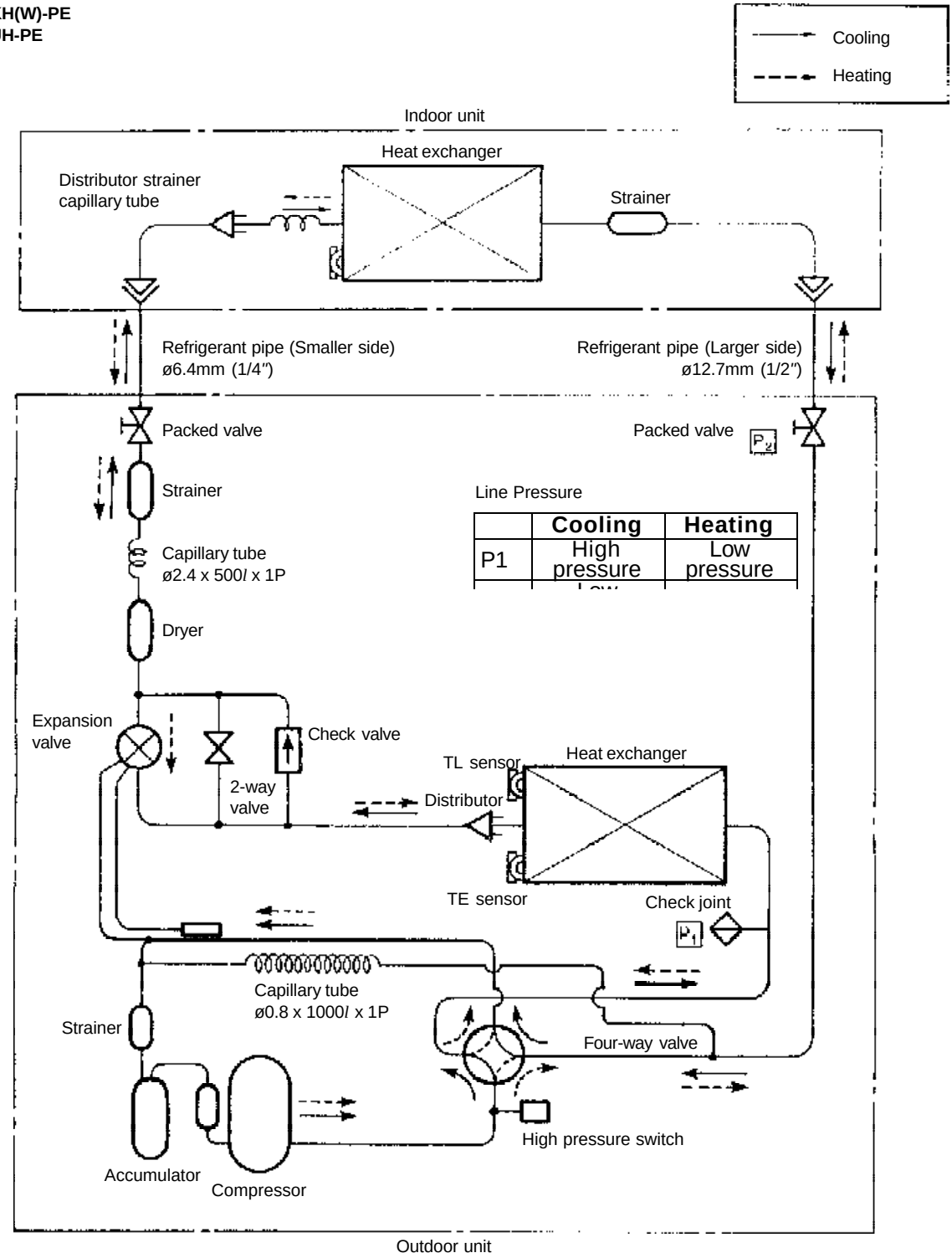
5. REFRIGERANT PIPING DIAGRAM

5.1 Indoor unit
RAV-132UH-PE



5.2 Indoor unit
RAV-162BH-PE
RAV-162CH-PE
RAV-162KH(W)-PE
RAV-162UH-PE

Outdoor unit
RAV-162AH-PE



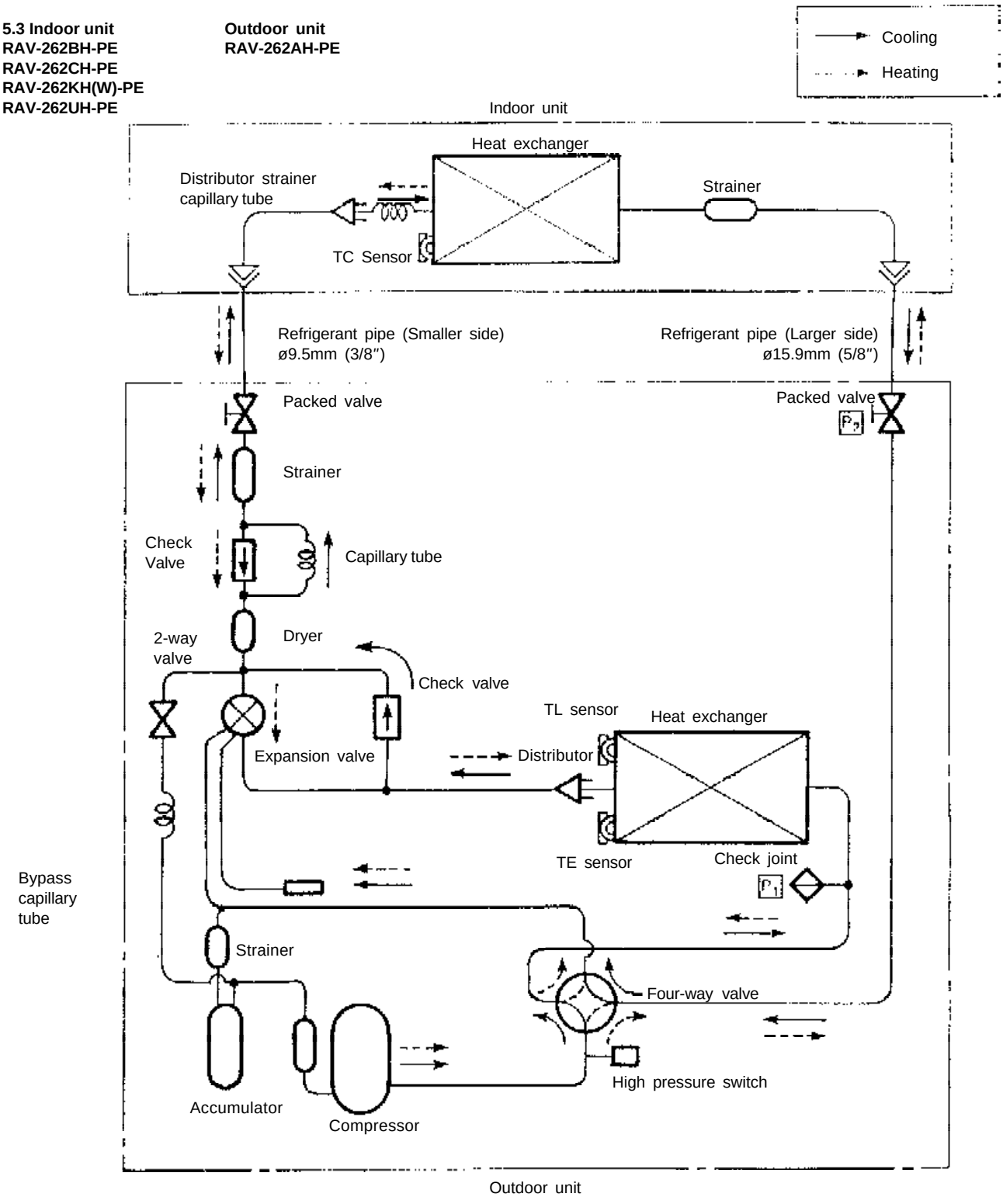
Line Pressure

	Cooling	Heating
P1	High pressure	Low pressure

INDOOR UNIT		OUTDOOR UNIT		
MODEL	CAPILLARY	MODEL	MAIN CAPILLARY	BYPASS CAPILLARY
RAV-162BH-PE	IDø 2x200 lx3P	RAV-162AH-P	IDø 2.4x500 lx1P	IDø 0.8x1000 lx1P
RAV-162CH-PE	IDø 1.7x400 lx4P			
RAV-162KH(W)-	IDø 1.7x200 lx2P			
RAV-162UH-PE	IDø 2x200 lx2P			

5.3 Indoor unit
RAV-262BH-PE
RAV-262CH-PE
RAV-262KH(W)-PE
RAV-262UH-PE

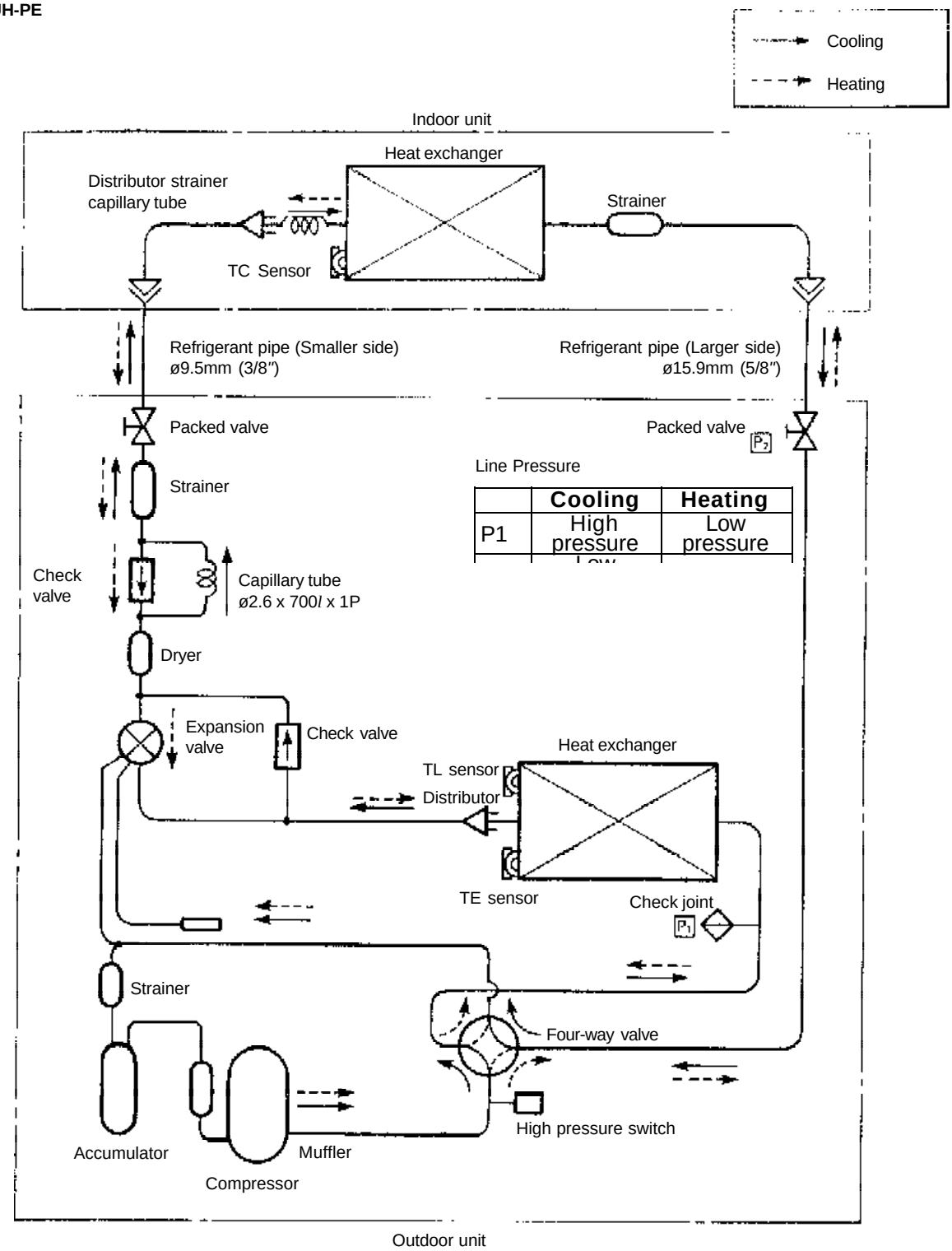
Outdoor unit
RAV-262AH-PE



INDOOR UNIT		OUTDOOR UNIT		
MODEL	CAPILLARY	MODEL	MAIN CAPILLARY	BYPASS CAPILLARY
RAV-262BH-PE	IDø 2x200 *l* x4P	RAV-262AH-P	IDø 2.6x900 *l* x1P	IDø 1x500 *l* x1P
RAV-262CH-PE	IDø 2.2x200 *l* x6P			
RAV-262KH(W)-	IDø 1.7x150 *l* x3P			
RAV-262UH-PE	IDø 1.7x400 *l* x4P			

5.4 Indoor unit
RAV-262BH-PE
RAV-262CH-PE
RAV-262KH(W)-PE
RAV-262UH-PE

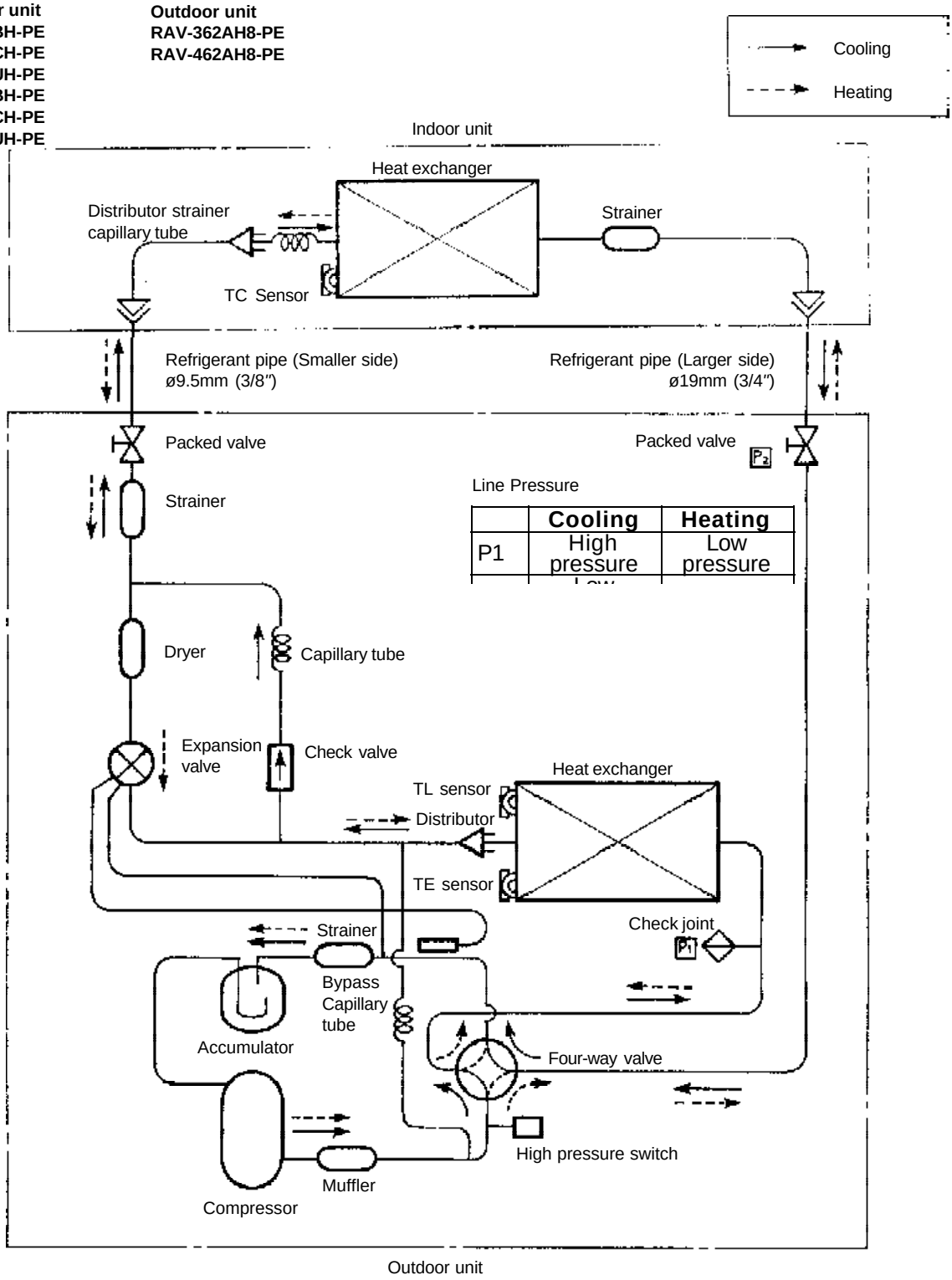
Outdoor unit
RAV-262AH8-PE



INDOOR UNIT		OUTDOOR UNIT	
MODEL	CAPILLARY	MODEL	CAPILLARY
RAV-262BH-PE	IDø 2x200 lx4P	RAV-262AH8-	IDø 2.6x700 l x1P
RAV-262CH-PE	IDø 2.2x200 l x6P		
RAV-262KH(W)-	IDø 1.7x150 l x3P		
RAV-262UH-PE	IDø 1.7x400 l x4P		

5.5 Indoor unit
RAV-362BH-PE
RAV-362CH-PE
RAV-362UH-PE
RAV-462BH-PE
RAV-462CH-PE
RAV-462UH-PE

Outdoor unit
RAV-362AH8-PE
RAV-462AH8-PE

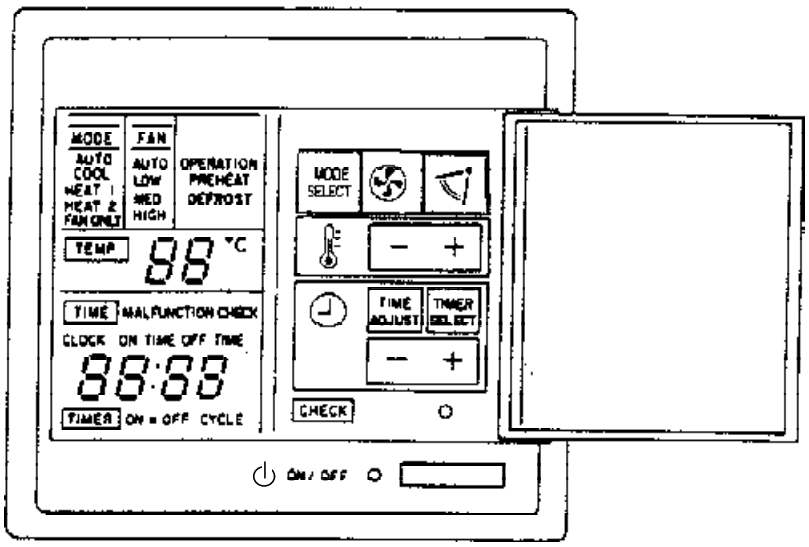


INDOOR UNIT		OUTDOOR UNIT		
MODEL	CAPILLARY	MODEL	MAIN CAPILLARY	BYPASS CAPILLARY
RAV-362BH-PE	IDø 2x400 *l*x6P	RAV-362AH8-	IDø 2.4x650 *l*x1P	IDø 1.7x1000 *l*x1P
RAV-362CH-PE	IDø 2x300 *l*x7P			
RAV-362UH-PE	IDø 2x300 *l*x8P			
RAV-462BH-PE	IDø 2.2x200 *l*x6P	RAV-462AH8-	IDø 3x600 *l*x1P	IDø 2x1000 *l*x1P
RAV-462CH-PE	IDø 2x200 *l*x8P			
RAV-462UH-PE	IDø 2x300 *l*x8P			

6. REMOTE CONTROLLER

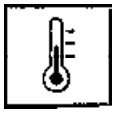
6.1 Remote controller

-46-



BUTTON	INDICATOR		OPERATION
ON/OFF		LED (RED)	Run/Stop
MODE SELECT	MODE	AUTO COOL HEAT 1 HEAT 2 FAN ONLY	Auto Changeover Cooling Heating Heating (with indoor fan operation at defrost) Fan only
	FAN	AUTO LOW MED HIGH	Auto Fan Speed Control Low Fan Speed Med. Fan Speed High Fan Speed
	TEMP.	88 °C °F	Temperature setting
TIME ADJUST	TIME	(1) CLOCK (2) ON TIME (3) OFF TIME 88:88	(1) Present Time Adjust (2) ON Time setting (3) OFF Time setting
TIMER SELECT	TIMER	ON OFF ON → OFF ON ← OFF CYCLE	ON Timer OFF Timer ON → OFF Timer OFF → ON Timer 24H CYCLE Timer

6.2 Outline of remote controller's functions

NO	KEY SWITCH	OUTLINE OF SPECIFICATION	REMARKS
1	[ON/OFF]	① When this button is pushed once, the air conditioner is turned on, with the operation lamp coming on. ② If pushed once more, it will be turned off, the operation lamp going off. ③ If pushed for 5 sec. in the mode of turning on the air conditioner, goes into test run mode.	
2	MODE SELECT	① Each time this button is pushed, the [MODE] setting is changed over cyclically, [AUTO] ➡ [COOL] ➡ [HEAT1] ➡ [HEAT2] ➡ [FAN ONLY] ➡ [AUTO]. ② If pushed continuously, the setting will be changed in one step every 0.5 sec.	
3		① Each time this button is pushed, the [FAN] setting is changed over cyclically, [AUTO] ➡ [LOW] ➡ [MED] ➡ [HIGH] ➡ [AUTO]. ② If pushed continuously, the setting will be changed in one step every 0.5 sec.	Fan speed
4	 + -	① Each time [+] this button is pushed, the [TEMP] setting of temperature is raised by 1°C. ② If [+] is pushed continuously, the setting will be raised by 1°C every 0.5 sec. ③ Each time [-] button is pushed, the setting of temperature is lowered by 1°C. ④ If [-] is pushed continuously, the setting will be lowered by 1°C every 0.5 sec.	In the 18-29° Control range
5	TIME ADJUST + - TIME ADJUST	① Each time [TIME ADJUST] button is pushed, the [TIME] display is changed cyclically. The time can be changed while the TIME display stays flashing. [CLOCK] [12:00] ➡ (flashing) [CLOCK] [12:00] ➡ (flashing) [ON TIME] [6:00] ➡ (flashing) [OFF TIME] [18:00] ② While the TIME display stays flashing, the time gains one minute upon each pressing of [+]. ③ If [+] is pushed continuously, the time gains 10 minutes every 0.25 sec. ④ While the TIME display stays flashing, the time goes back one minute upon each pressing of [-]. ⑤ If [-] is pushed continuously the time goes back 10 minutes every 0.25 sec. ⑥ Each time the [TIMER SELECT] button is pushed, timer mode changes over cyclically, [ ] (CONTINUE) ➡ [ON] ➡ [OFF] ➡ [ON ➡ OFF] ➡ [ON ➡ OFF] ➡ [CYCLE] ➡ [ ]. ⑦ If pushed continuously, the timer mode will be changed in one stop every 0.5 sec.	If time is not set, 12:00 6:00 18:00 are set automatically.
6	CHECK	① Pressing this key for 0.5 sec. provides [MALFUNCTION CHECK], indicating on liquid crystal the contents of inspection in the sequence of (times of compressor-on) ➡ (contents of malfunction for #1 unit) ➡ (contents of malfunction for #2 unit) ➡ ..... ② Pressing this key for 5 sec. gives “Indoor microcomputer reset mode” to reset the indoor microcomputer by way of hardware. ③ Pressing this key for 10 sec. gives “Check contents clear mode” to clear the contents of inspection stored in the remote controller provided, however, times of compressor-on is not cleared.	The indication of the indoor unit which has not any malfunction content is skipped.
7	Reset	① By pressing the reset key, the remote controller is reset by way of hardware. (The setting/display are in initial values with the check memory cleared.)	

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6.3 Timer operation

Continuous operation and timer operations are available. The setting of timer operation can be done as follows:
ON, OFF, ON ➡ OFF, OFF ➡ ON, ON ⬅➡ OFF CYCLE.

6.3.1 Time display

The present time is always displayed

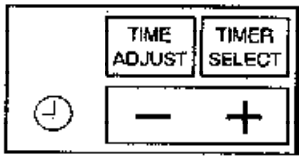
The display of the ON/OFF time is only in setting the time.

Once set, it will not change even after carrying out the timer operation until the timer is reset

Initial set time	The present time	12:00
	The time of ON	6:00
	The time of OFF	18:00

6.3.2 How to set the time

Liquid crystal



As to (-) and (+), change takes place by one minute by pressing once and 10 min./0.25 sec. by pressing continuously.

How to set the present time

1)

[TIME ADJUST] switch is pressed.
[CLOCK] and Time figures flash.

2) Time is set by Time setting switch (–) or (+). The setting is finished when (–) or (+) buttons are released. Pressing [TIME ADJUST] three times gives the display of the present time.
(If left as it is, after 15 sec. the display will go back to the present time).

How to set ON TIME

1)

[TIME ADJUST] switch is pressed twice.
[ON TIME] and Time figures flash.

2) Time is set by Time setting switch (–) or (+). The setting is finished when (–) or (+) buttons are released. Pressing [TIME ADJUST] twice gives the display of the present time.
(If left as it is, after 15 sec. the display will go back to the present time).

How to set OFF TIME

1)

[TIME ADJUST] switch is pressed three times.
[OFF TIME] and Time figures flash.

2) Time is set by Time setting switch (–) or (+). The setting is finished when (–) or (+) buttons are released. Pressing [TIME ADJUST] gives the display of the present time.
(If left as it is, after 15 sec. the display will go back to the present time).

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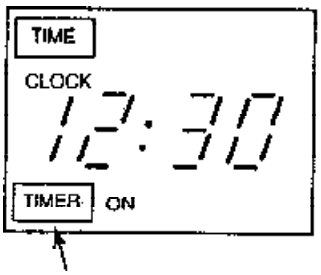
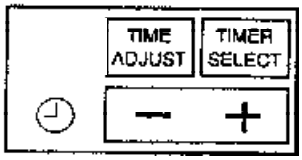
6.3.3 How to set the timer operation



Timer mode display



The following can be chosen sequentially by pressing [TIMER SELECT] switch:
1) [TIMER] ON
2) [TIMER] OFF
3) [TIMER] ON ➡ OFF
4) [TIMER] ON ⬅ OFF
5) [TIMER] CYCLE

- Be sure to set the present time.
- In case of reoperating after finishing timer operation. If [TIMER SELECT] is not altered, the timer operation will be performed again.

Timer ON operation

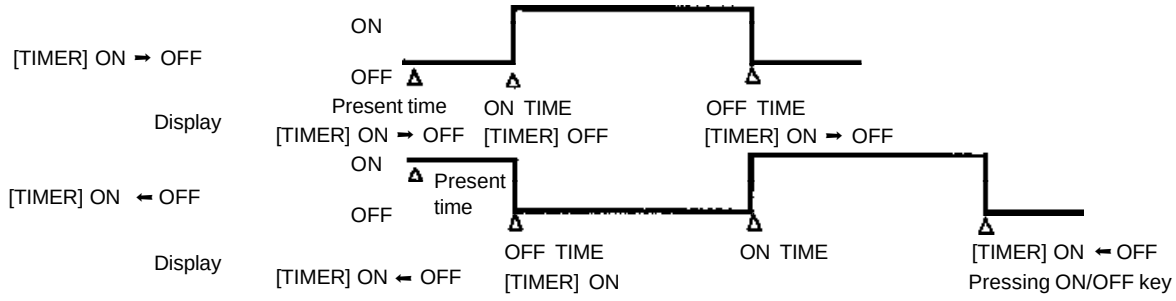
1) [TIMER] ON is applied.
2) ON/OFF key is pressed. Then LED is lighted. When the set [ON TIME] comes, the operation starts and OPERATION display appears on the liquid crystal, and the [TIMER] ON display goes off.
3) LED and OPERATION display goes off upon pressing ON/OFF key for stopping and [TIMER] ON is displayed.

Timer OFF operation

1) [TIMER] OFF is applied.
2) ON/OFF key is pressed. Then LED is lighted and the operation starts with OPERATION displayed on the liquid crystal.
3) When the set [OFF TIME] comes, the operation stops and the LED, OPERATION display goes off with [TIMER] OFF displayed.

ON ⬅➡ OFF timer operation

1) [TIMER] ON ➡ OFF or [TIMER] ON ⬅OFF is applied.
2) ON/OFF key is pressed. LED comes on and the operation is performed as below:

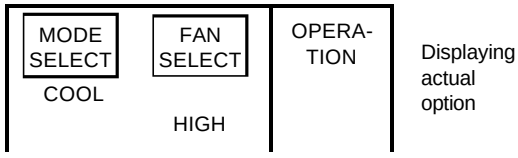


Repeated operation

1) [TIMER] CYCLE is applied.
2) ON/OFF key is pressed. Then LED is lighted and ON ⬅➡ OFF timer operation is repeated according to the ON time and OFF time (repeating every day as it is a 24-hour timer).
3) The operation key is pressed. LED goes off and operation stops.

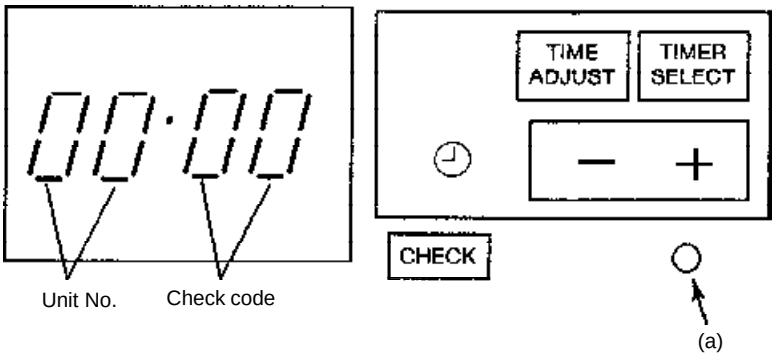
Timer stand-by display and operation display

Waiting on the timer is displayed by LED lighting while the actual operation is displayed by OPERATION on liquid crystal.



6.4 Malfunction check monitor

6.4.1 The times of compressor ON as well as the check code are displayed on the time display area by pressing CHECK key.



[CHECK] switch

Provides check code display by pressing for one second and indoor microcomputer reset by pressing for 5 seconds.

* Remote controller clear by pressing the key for 10 sec. Check code is cleared (normally not used).

(a) Reset key (pushed by a needle and the like). Resetting remote controller (to the initial setting).

Judgement from operation status

	OPERATION STATUS	COD	CAUSE
1.	Compressor stays off in cooling: it is not turned off in heating.	0C	Open-circuit in room temperature sensor.
	Compressor stays off in heating: it is not turned off in cooling.		Short-circuit in room temperature sensor.
2	Indoor fan stays off in heating.	0d	Open-ciruit in indoor heat-exchanger sensor.
	Outdoor fan continues ON-OFF operation in heating.		Short-circuit in indoor heat-exchanger sensor.
3.	Though indoor unit operates, outdoor unit remains off.	04	Abnormality in connecting cable between indoor and outdoor units.
4.	Indoor fan does not work in heating operation. Warm air comes out in cooling operation.	08	4-way valve coil burnt out, pipe clogged, abnormality in indoor heat-exchange sensor.
5.	Indoor fan at LOW speed in cooling operation with the outdoor remaining in stoppage.	09	Refridgerant gas in shortage. abnormality in indoor heat-exchange sensor.
6.	Full stop	18	Open or short-circuit in outdoor TE sensor.
7.	Full stop	19	Open or short-circuit in indoor TL sensor.
8.	Full stop	21	Pressure switch does not reset within the set time.
			Abnormality in connecting cable

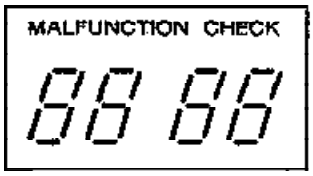
* With drain pump units only

Note : If the red LED on the remote controller does not flash when the system is switched on, then the wiring to the outdoor unit needs to be checked to ensure that the three phases are wired in the correct sequence. (RAV-262AH8 unit only.)

6.4.2 How to read malfunction check monitor display

By pressing [CHECK] key, times of No. 1 unit compressor-ON actuations as well as the check code information of 2 faults x 16 units are displayed on the time display area. (2 sec. per one phenomenon)

< Times of compressor-ON >



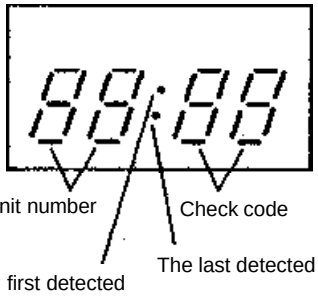
Display in 4 digits of hexadecimal notation

Ex. in case of the number of times of compressor actuations of 164.

$16^3 \times 0 + 16^2 \times 0 + 16 \times 10 + 4 = 164$

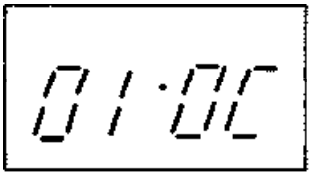
Display in 7 segments

< Check code information >

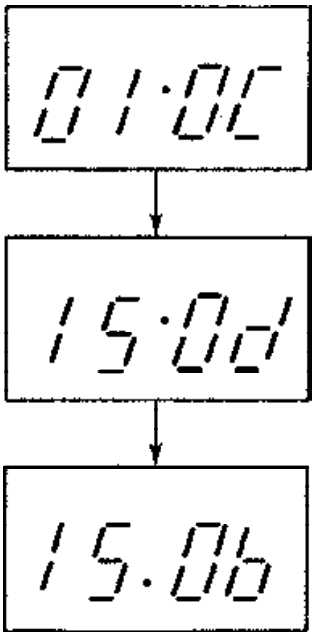


No display is made if there is no fault.

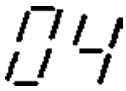
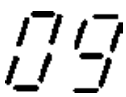
Ex. In case of room temperature sensor of No. 1 unit in trouble.



For No. 15 unit, firstly heat exchanger temperature sensor and secondly float switch circuit are faulty.



6.4.3 List of Check Codes

	ROOM TEMP. SENSOR (TA). Out of place, break, short-circuit.	Operation continuing	1. Check the indoor temp. sensor. 2. Check the indoor PC board.
	INDOOR HEAT-EXCHANGER SENSOR (TC). Out of place, break, short-circuit.	Operation continuing	1. Check the indoor heat-exchanger sensor. 2. Check the indoor PC board.
	RETURN SIGNAL NOT COMING TO INDOOR 1) Wrong wiring in connecting cable (serial signal).	Operation continuing	1. If outdoor unit does not work at all. (1) Check the connecting cable correct wrong wiring. (2) Check the outdoor PC board. 2. If operates normally. Between indoor terminal plates 2 and 3, return signal is: Available: Check the indoor PC board. Not available: Check the outdoor PC board.
	4-WAY VALVE SYSTEM 1) Indoor heat-exchanger temperature rises, after starting cooling operation. 2) Indoor heat-exchanger temperature drops after starting heating operation.	Operation continuing	1. Check the 4-way valve. 2. Check the 2-way valve and check valve. 3. Fault with indoor heat exchanger sensor. 4. Check the indoor PC board.
	OTHER CYCLE SYSTEM 1) Indoor heat exchange temperature does not change after starting cooling/heating operation.	Operation continuing	1. Compressor case thermostat, IOL, OL operation. (contactor OFF, compressor stops: AH8 Models) (contactor ON, compressor stops: AH Models) 2. Indoor heat-exchange sensor out of place. 3. Check the indoor PC board. 4. Check that service valves are OPEN.
	2) When transmitting instruction for stopping compressor by freeze preventing control.	Outdoor unit stops (indoor fan L)	1. Check the charged amount of refrigerant gas. (Gas shortage → gas supplement, check for gas leaks) 2. Indoor fan locked.
	DEFROST SENSOR (TE) Out of place, break, short-circuit.	Full stop	1. Check the defrosting sensor. 2. Check the outdoor PC board.

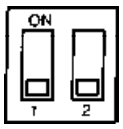
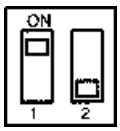
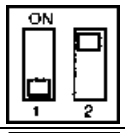
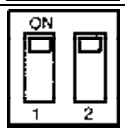
19	OUTDOOR HEAT-EXCHANGER SENSOR (TL) Out of place, break, short-circuit.	Full stop	1. Check the outdoor heat-exchanger sensor. 2. Check the outdoor PC board.
21	HIGH PRESSURE SWITCH High pressure switch does not reset. { 5 sec in cooling 30 sec in heating }	Full stop	1. Check the high pressure switch. 2. Check the outdoor PC board.
1C	OTHER ABNORMALITY OF OUTDOOR UNIT Compressor does not operate. Start once, but soon after stop by OCR	Full stop	1. Check the compressor. 2. Check the wiring of compressor. (lack of phase, short circuit) 3. Check the voltage. 4. Check the outdoor PC board.
99	WRONG WIRING OF REMOTE CONTROL UNIT Indoor unit does not operate at all.	Full stop	1. Check the wiring between remote control unit and indoor unit. 2. Check the indoor unit PC board.
05*	FLOAT SWITCH Float circuit out of position, break.	Outdoor unit stops	1. Fault in drain pump. 2. Drain pipe clogged. 3. Check for indoor PC board.

* With drain pump unit only.

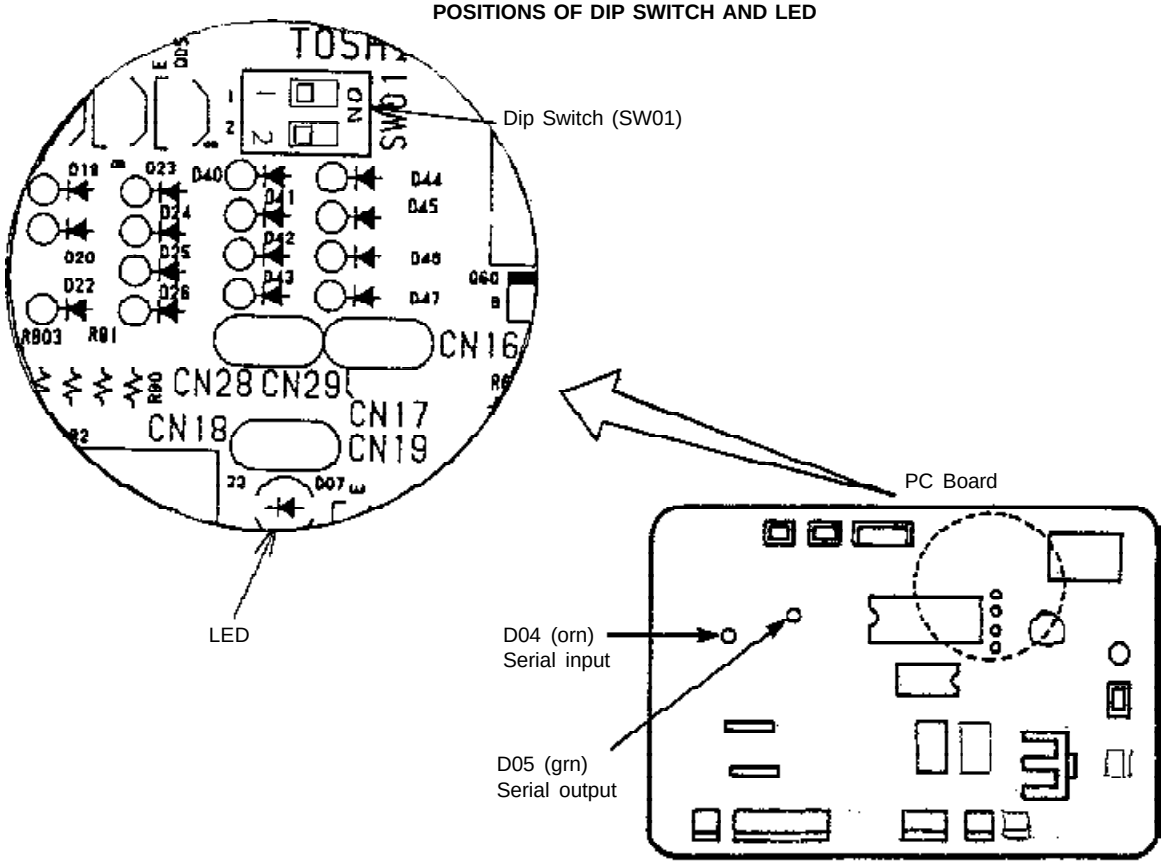
6.5 Malfunction check

6.5.1 Using LED display on outdoor PC board

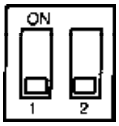
LED display vs. check code

	Dip switch settings (DSW01)	LED			
		1 (RED)	2 (YELLOW)	3 (YELLOW)	4 (YELLOW)
Table-1					21 High pressure switch fault
Table-2		18 Temp. sensor (TE) faulty 19 Temperature sensors TD/TL open/short circuit.		Number of protective device operations	
Table-3		Serial input data			
Table-4		Serial output data			

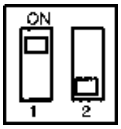
POSITIONS OF DIP SWITCH AND LED



<Table-1>

Dip switch settings	LED 1	LED 2	LED 3	LED 4	Judgement	
	●	●	●	●	Normal operation	
	◔	●	●	●	Timer short	
						Full stop
	○	○	○	◔	21 High pressure switch fault	
	○	○	○	○	18, 19 Fault codes (Refer to Table-2)	

<Table-2>

Dip switch settings	LED 1	LED 2	LED 3	LED 4	Judgement	
	●	●	●	●	Normal operation	
	●	●	●	○	Number of protective device operations: one	
	●	●	○	●	Number of protective device operations: two	
	●	●	○	○	Number of protective device operations: three	
	LEDs 3 & 4 flashing (1Hz) faults shown below.		◑	◑	Number of protective device operations: four	
	◔	○	◑	◑	18 Temperature sensor (TE) faulty 19 Temperature sensors (TD/TL) open/short circuit	Full stop
	○	○	◑	◑	21 Hi h ressure switch fault	

LED Status

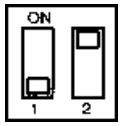
○ : on

◔ : :5Hz flash

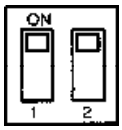
◑ : :1Hz flash

● : off

<Table-3>

Dip switch settings	LED				Status of compressor
	1	2	3	4	
	●	●	●	●	Stop
	●	●	○	○	Operating
	●	○	●	●	
	●	○	●	○	
	●	○	○	●	
	●	○	○	○	
	○	●	●	●	
	○	●	●	○	
	○	●	○	●	
	○	●	○	○	
	○	○	●	●	
	○	○	●	○	
	○	○	○	●	
	○	○	○	○	

<Table-4>

Dip switch settings	LED				Status of compressor
	1	2	3	4	
	●	●	●	●	Stop
	●	●	○	○	Operating
	●	○	●	●	
	●	○	●	○	
	●	○	○	●	
	●	○	○	○	
	○	●	●	●	
	○	●	●	○	
	○	●	○	●	
	○	●	○	○	
	○	○	●	●	
	○	○	●	○	
	○	○	○	●	
	○	○	○	○	

7. OUTLINE OF CONTROL CIRCUIT

<table>
<tr><th>NO</th><th>ITEM</th><th>OUTLINE OF SPECIFICATIONS</th><th>REMARKS</th></tr>
<tr><td>1</td><td>Discrimination</td><td>Discrimination of outdoor unit is performed either in the reset of power source or when stopping from operating condition, and the controlling is changed over in accordance with the result of discrimination.</td><td></td></tr>
<tr><td>2</td><td>Operation change-over</td><td>Operation mode is changed over according to operation mode select instruction from the remote controller.

<table><tr><th>REMOTE CONTROLLER INSTRUCTION</th><th>OUTLINE OF CONTROL</th></tr><tr><td>Stop</td><td>Stopping air conditioner</td></tr><tr><td>Auto</td><td>Performing automatic change-over</td></tr><tr><td>Cool</td><td>Performing cooling operation</td></tr><tr><td>Heat 1</td><td>Performing heating operation</td></tr><tr><td>Heat 2</td><td>Performing heating operation with indoor fan operation at defrosting</td></tr><tr><td>Fan only</td><td>Performing fan only operation</td></tr></table></td><td></td></tr>
<tr><td rowspan="2">3</td><td>Controlling room temperature</td><td>3-1 Adjusting range (°C)

<table><tr><th></th><th>In cooling</th><th>In heating</th></tr><tr><td>Remote controller setting temperature</td><td>18 ~ 29</td><td>18 ~ 29</td></tr><tr><td>Operating temperature</td><td>18 ~ 29</td><td>20 ~ 31</td></tr></table>
3-2 Operating point is compressor - off.
3-3 Operating temperature accuracy: ± 1°C
3-4 Differential: 1 deg</td><td rowspan="2">Ts (Max) = 35°C</td></tr>
<tr><td>Correcting temperature compensation</td><td>3-5 Room temperature controlled in the heating operation can be corrected by dip switch of indoor microcomputer.

<table><tr><td>Dip switch 1
Setting 2</td><td>ON
ON</td><td>ON
OFF</td><td>OFF
ON</td><td>OFF
OFF</td></tr><tr><td>Control temperature compensation</td><td>0 deg</td><td>2 deg</td><td>4 deg</td><td>6 deg</td></tr></table></td></tr>
</table>

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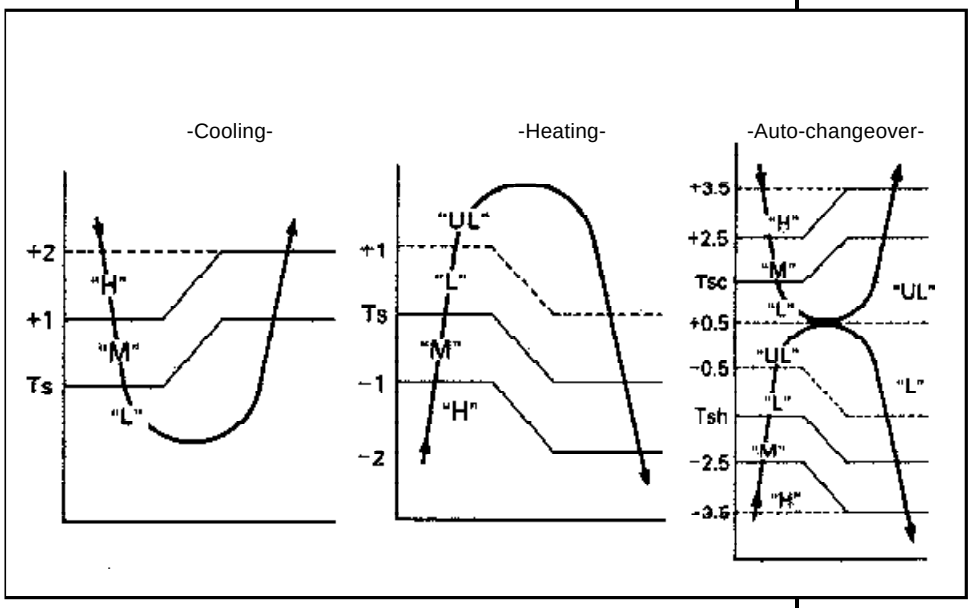
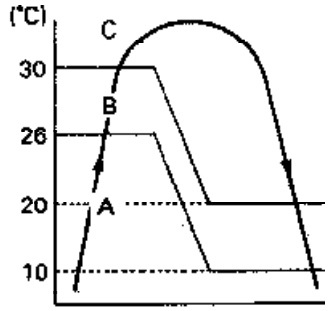
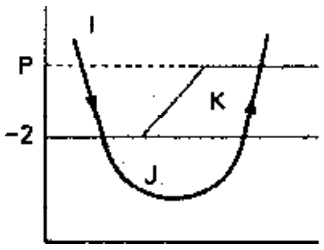
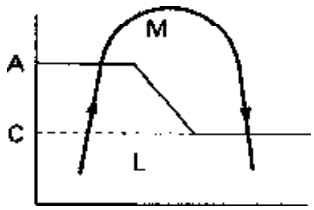
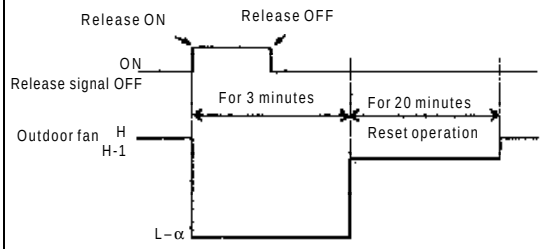
NO.	ITEM	OUTLINE OF SPECIFICATIONS	REMARKS
4	Fan speed control	4-1 [HIGH], [MED], [LOW] and [AUTO] are available. 4-2 [Ultra low] or [Stop] when compressor is turned off while heating is being performed. 4-3 In the auto fan, the fan speed is changed by the difference between Ta and Ts, as shown below. 	[Stop] is cold draft prevented by Tc.
5	Cold draft preventing control	When performing heating operation, indoor fan control is carried out as follows based on temperature detection of Tc sensor. C zone: Depending upon fan speed setting of the remote controller B zone: Indoor fan at "L" A zone: Fan stop 	
6	Freeze preventing control (Low temp. release)	When performing cooling operation, the following control is done based on temperature detection of Tc sensor. ① When starting the operation, the point P is made +3°C. ② When [J] zone is detected, timer counting starts. ③ When [K] zone is detected, timer counting is discontinued and held on. ④ When [I] zone is detected, timer is cleareed for returning back to ordinary operation.  ⑤ When timer counting becomes full time, the ourdooor unit stops and the point P is changed to +12°C to be covered by check display. When [I] zone is reached, the temperature is returned back to +3°C.	Full Time MIN 7 min. MAX 20 min.

NO.	ITEM	OUTLINE OF SPECIFICATIONS	REMARKS
7	High temperature release control	When performing heating operation, the following control is done based on temperature detection of Tc sensor. ① In [M] zone, release signal is transmitted. Outdoor fan is controlled in accordance with the diagrams below ② The control point for A and C can be chosen from the below table:	L–α=0 (fan stop)

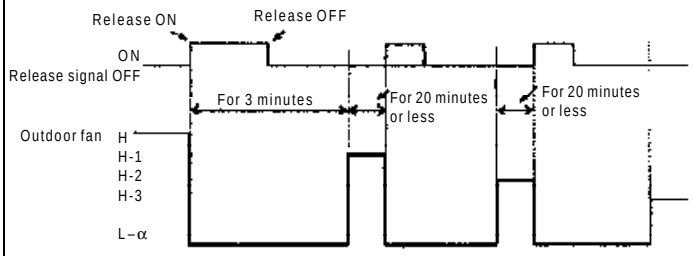


Dip Switch Setting	3	4			
	ON	ON	ON	OFF	OFF
				ON	OFF
A/C (℃)	54/52	58/56	60/58	-	

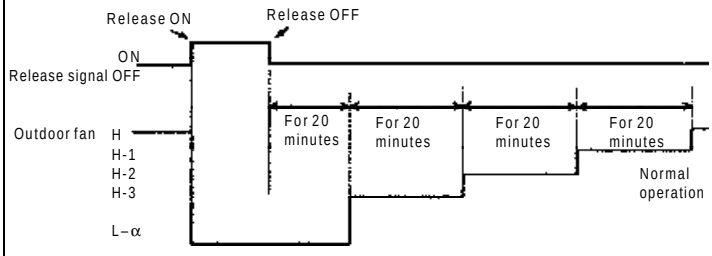
Single release



Duplicate release



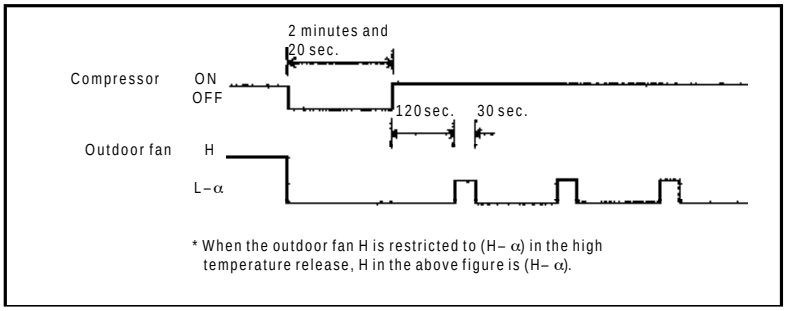
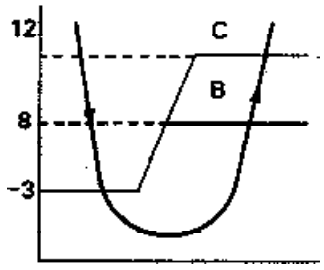
Reset operation

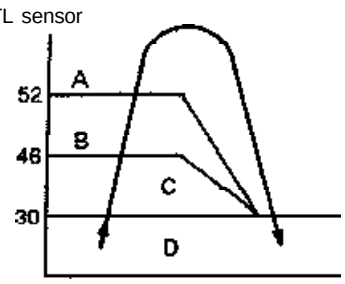


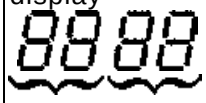
When the high temperature release is received, the release control continues for 3 minutes at least even if release is performed on the way, and H-1 is performed for 20 minutes and the machine returns to normal operation. When the release signal continues for more than 3 minutes, H-1 operation of outdoor fan control is performed at the same time as releasing the release and the machine returns to normal operation.
When the high temperature release is received during operation of H-1 for 20 minutes, operation of the previous time –1 of reset operation is performed for 20 minutes after release operation.
If the release signal is not received during reset operation for 20 minutes, reset operation of +1 per 20 minutes is performed and the machine returns to normal operation.
The high temperature release control is ignored during defrosting operation.

Release of H–α discontinued:-

① When stopping operation
② When changing over operation

NO.	ITEM	OUTLINE OF SPECIFICATIONS	REMARKS
8	Residual heat removal	When stoppage takes place in [HEAT 2] operation, indoor fan is operated in [LOW] for 30 sec.	
9	Test operation	If Remote controller's ON/OFF switch is pressed 5 seconds continuously, the unit goes into test run mode with the indoor fan in the [HIGH].	
10	High pressure release	The following control is performed when high pressure switch of the outdoor unit is actuated. ① In cooling operation Compressor is turned off and if the high pressure switch does not reset for 5 seconds continuously thereafter, it is judged abnormal. ② In heating operation Compressor is turned off and if the high pressure switch does not reset for 30 seconds continuously thereafter, it is judged abnormal. If the switch resets within 30 sec., the compressor restarts 2 minutes and 20 sec. later and operates according to the diagram below.  * When the outdoor fan H is restricted to (H– α) in the high temperature release, H in the above figure is (H– α). ③ In defrosting operation Compressor is turned off, the operation returning back to heating operation.	<Outdoor unit control> LED lamp comes on in abnormal condition, with abnormal code transmitted to indoor unit. L–α=0 (fan stops)
11	Protection at the time of Mg-SW fusing	If the high pressure SW continues to operate for 5 seconds while the compressor is stopping, fusing of Mg-SW is detected and the outdoor fan is controlled as described below. ① When the four-way valve is OFF (including during defrosting operation) Turn ON the outdoor fan using “H”. ② When the four-way valve is ON Turn OFF the outdoor fan. (When the compressor is stopping, the outdoor fan should be OFF)	
12	Defrosting	12-1 In heating operation, defrosting is made based on outdoor heat exchange temperature Te. 12-2 When cumulative working time of the compressor in [A] zone has amounted to 55 minutes, defrosting operation starts. (25 minutes initially) 12-3 The longest defrosting time is 12 minutes, 60 sec. in the case of turning into [B] zone, and immediate returning back when [C] zone is reached  	<Outdoor unit control>
13	Four-way valve reversal control	The following control shall be performed when the compressor stops: ① The 4-way valve in the hold state shall be reversed 10 seconds before the restart delay timer counts the maximum count (2 minutes 20 seconds). ② After the restart delay timer counts the maximum value, the specified mode shall be selected.	

<table>
<tr><th>N</th><th>ITEM</th><th>OUTLINE OF SPECIFICATIONS</th><th>REMARKS</th></tr>
<tr><td>14</td><td>Low ambient cooling</td><td>
14-1 Control on outdoor fan is made to meet with cooling at low outdoor temperature based on outdoor heat exchange temperature TL.
14-2 Control by outdoor heat exchange temperature TL is illustrated on the right.
14-3 For first 2 minutes after starting cooling operation the fan(s) operate in “H” speed.


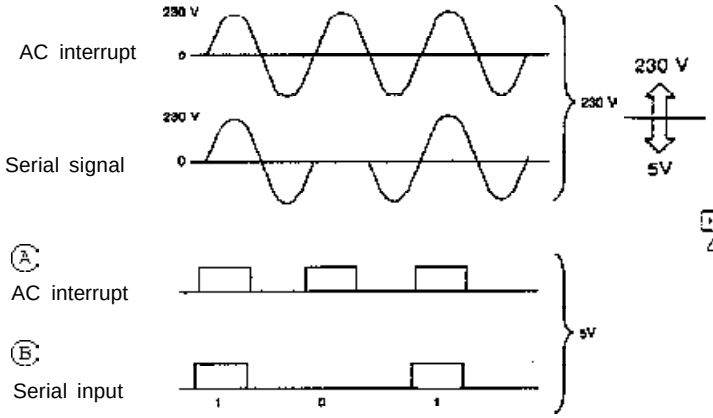
<table>
<tr><th></th><th>Air quantity</th></tr>
<tr><td>A Zone</td><td>H</td></tr>
<tr><td>B Zone</td><td>Per 1 minute and 30 sec. +1 wave</td></tr>
<tr><td>C Zone</td><td>Maintain</td></tr>
<tr><td>D Zone</td><td>Per 20 sec. 1 wave</td></tr>
</table>
+1 wave,–1 wave is (current number of waves) ± (1 wave)
Air quantity “M” automatic control
Timer accuracy: 20^{+0}_{-10} sec.
1 minute and 30 $^{+0}_{-10}$ sec.
</td><td><Outdoor unit control></td></tr>
<tr><td>15</td><td>Check display</td><td>Fault diagnosis is carried out by check for serial transmission and reception with outdoor unit as well as the self check by indoor microcomputer. And check code is transmitted to protective operation/remote controller based on the contents of it.
In the remote controller, check code is displayed on the liquid crystal by pressing [CHECK] key.</td><td>See other item: Using [TIME] display
 
Unit NO. Check code</td></tr>
<tr><td>16</td><td>Anti-restart timer</td><td>The outdoor unit delays restarting for 2 mins 20s to prevent short cycling compressor operation.</td><td></td></tr>
<tr><td>17</td><td>Group operation control</td><td>Up to 16 units can be controlled in same setting condition by one remote controller.
However, thermo-control function is independent.
Respective delayed start time for preventing simultaneous large starting current can be obtained by different setting of the unit No. switch on the indoor PC board.</td><td></td></tr>
</table>

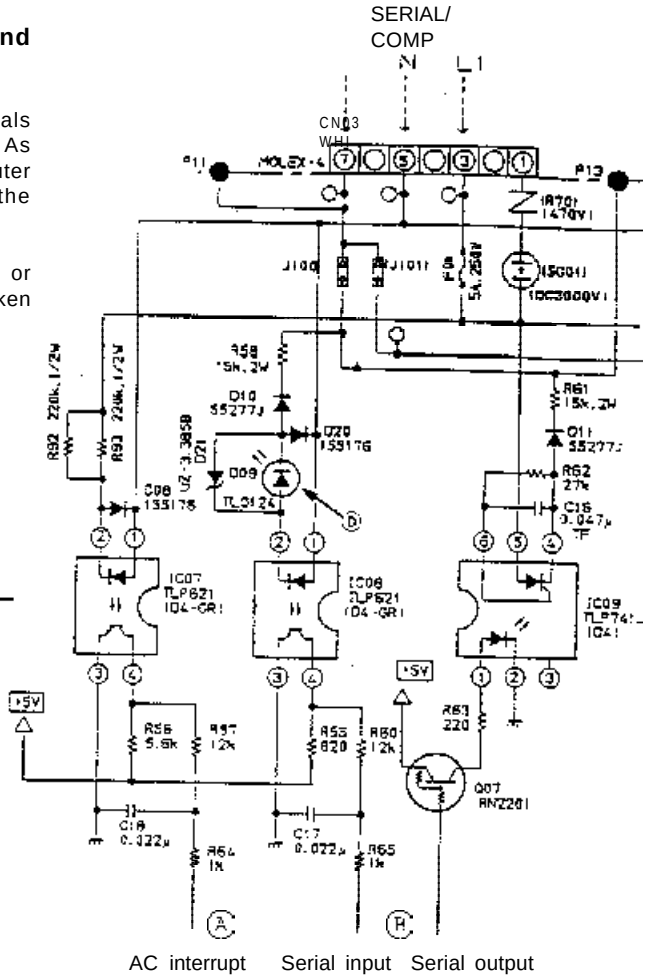
8. DESCRIPTION OF INDOOR UNIT CONTROL CIRCUIT

8.1 Serial signal circuit (between outdoor and indoor units)

This is a circuit for transmitting and receiving the signals between the indoor and outdoor units in serial signal. As 230V is used for transmitting the signal, the microcomputer section is insulated by means of photo-coupler with the voltage reduced to 5V.

With AC interrupt, judgement is made as to the presence or absence of serial signal based on the reference pulse taken out from the voltage across R and S.

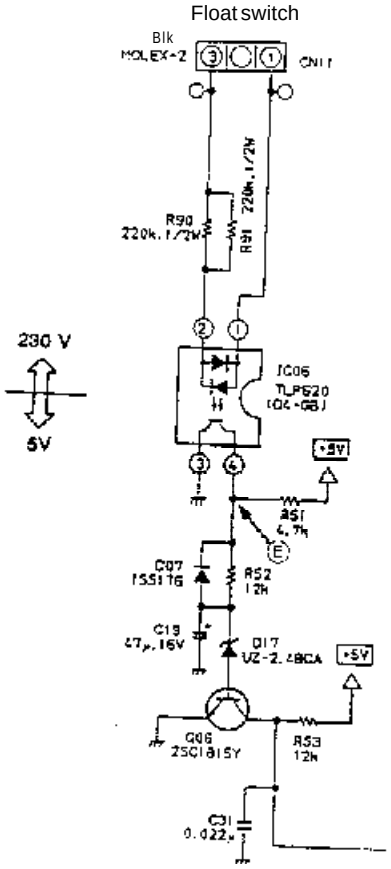




Ⓐ / Ⓑ... are measurement points on the printed circuit board.
Ⓔ provides flashing (orange) on LED in the serial input.

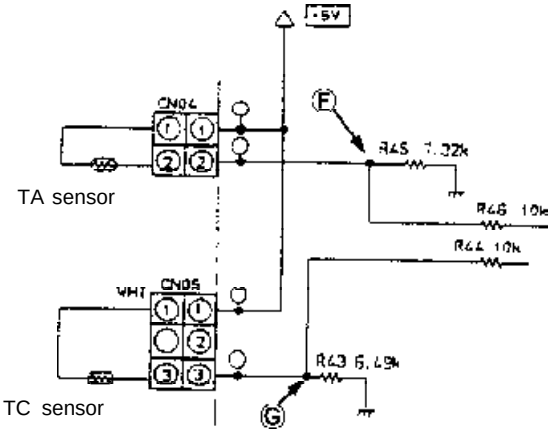
8.2 Float switch circuit

In normal condition in which float switch is not operated, 230V is applied across the pins 1 and 2. At this time, point Ⓔ is at the GND level. If the float switch is operated, Ⓔ will be at the level of 5V.



8.3 Sensor circuit

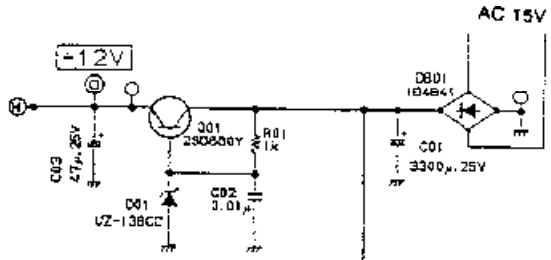
This circuit detects the temperature by dividing voltage with resistance and sensor and bringing the voltage value into CPU, using the characteristics of the sensor that resistance varies with different temperatures. TA and TC have the /same circuit composition.



When TA and TC are at 25°C approximately, the voltage level is some 2V both at points (F) and (C). If (F) / (C) are at GND or 5V, abnormal condition prevails such as opening or short-circuit of the sensor.

8.4 12V power source circuit

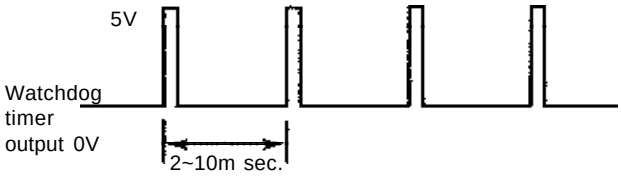
Full-wave rectification by diode bridge (DB01) of alternate current supplied from power transformer followed by the provision of transistor (Q01) gives DC12V power source ((I)).

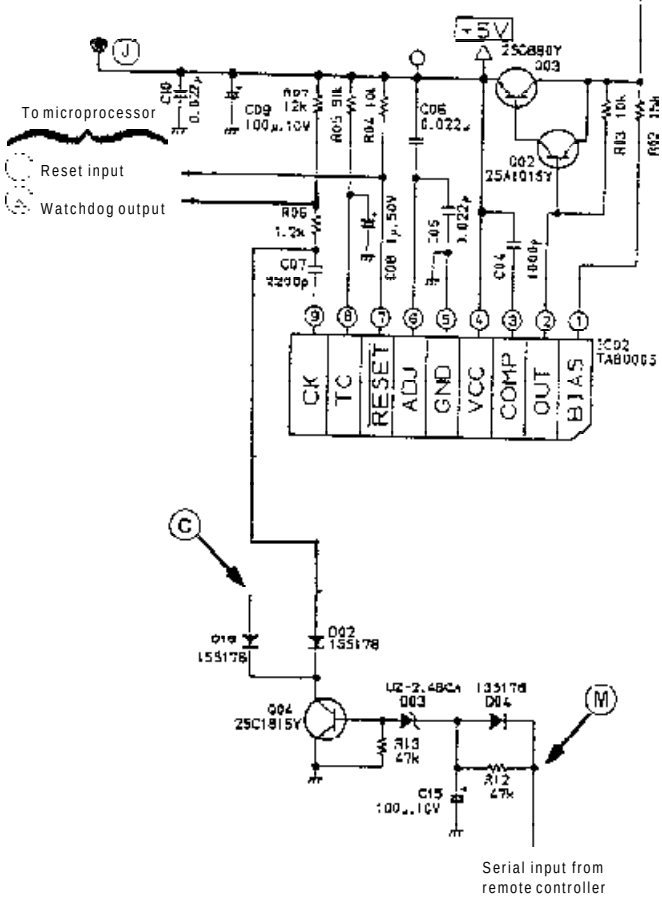


8.5 5V watchdog timer circuit

Built-in IC (TA8000S) is used to produce 5V power source ((L)). Also, it sends signals to reset port ((E)) of microcomputer which is in stand-by at 0V and starts its operation with the signal of 5V.

Watchdog timer output ((A)) gives the signal from microcomputer as illustrated below. This indicates that the microcomputer is working in normal routine. For example if the microcomputer is straying due to noise and so on, this waveform is not produced. In case there is no waveform, it plays the role of restoring normal condition by inputting the resetting “0V”+ to the microcomputer.





8.6 Reset circuit

This circuit makes indoor microcomputer reset by way of hardware when you keep pressing the check key of remote controller for longer than a predetermined period. It plays the role of resetting microcomputer from the remote controller when it strays. The point ((M)), which is normally at the level of 5V drops down to the GND level in the reset operation.

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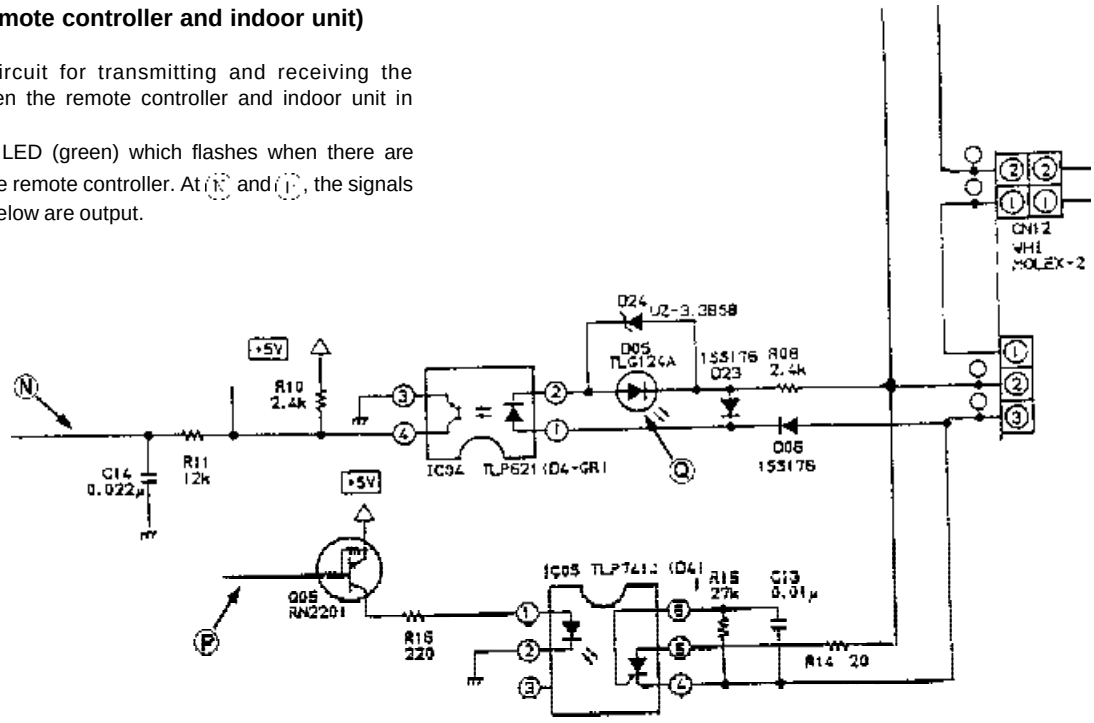
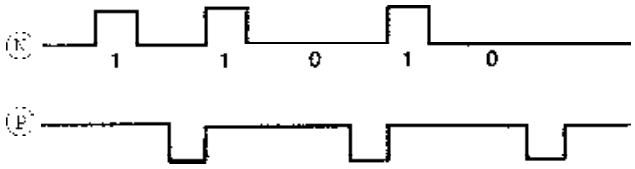
8.7 Serial signal circuit (Between remote controller and indoor unit)

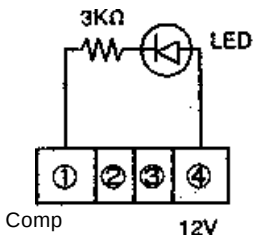
This is the circuit for transmitting and receiving the signals between the remote controller and indoor unit in serial signal.
Point (Q) is a LED (green) which flashes when there are signals from the remote controller. At (K) and (L), the signals as illustrated below are output.

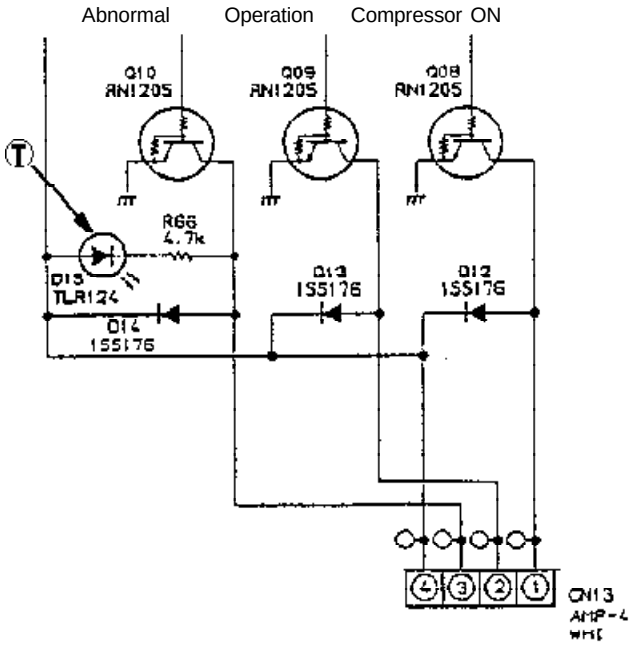


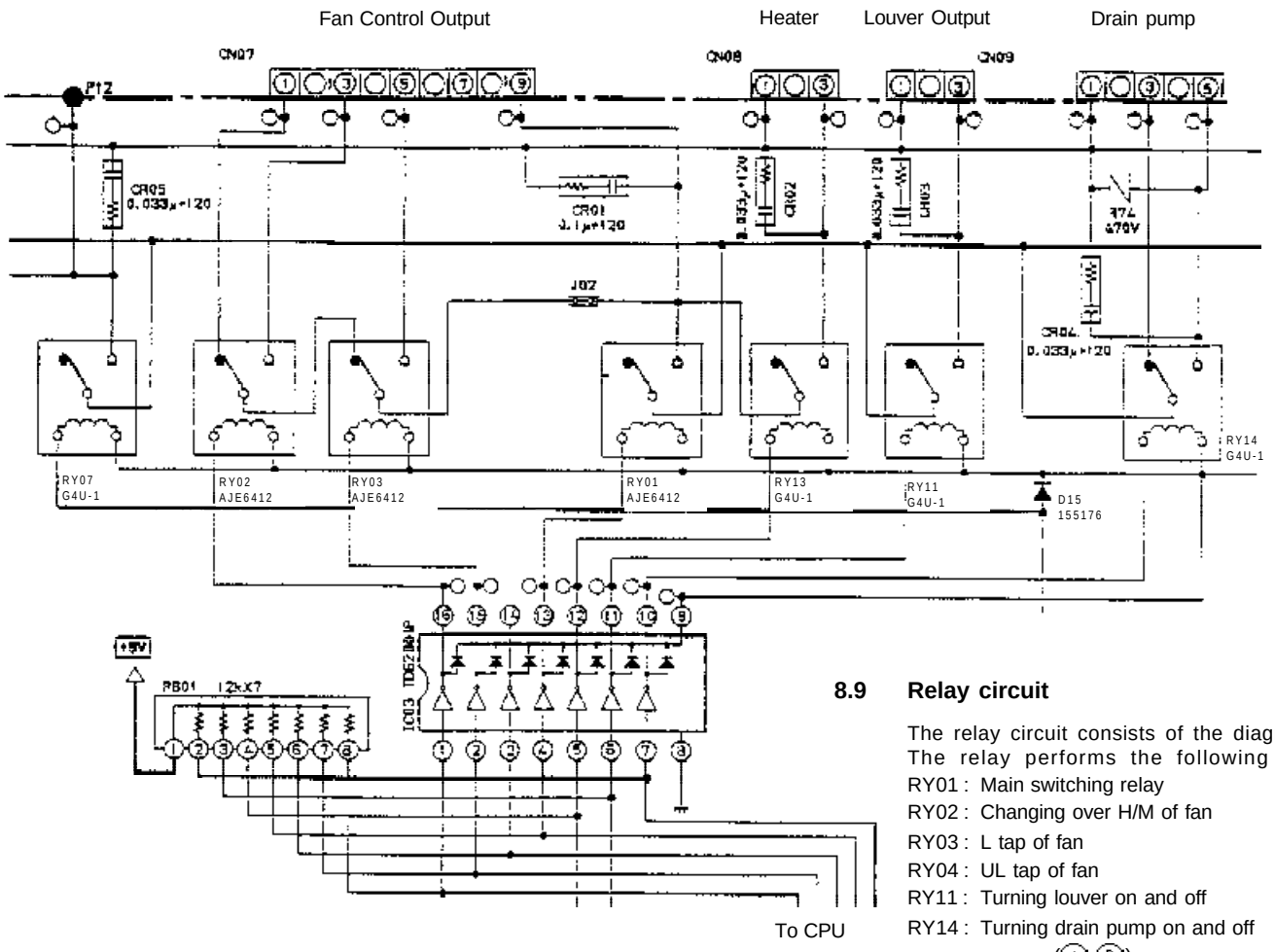


8.8 Optional circuit

A circuit which allows for the take-out of the signals of abnormal, operation and Compressor-ON. Point (T) is a LED which lights at abnormal.
The connector pin 4 outputs 12V. When you want to see the signal of compressor-ON, you can do it simply with the circuit below.



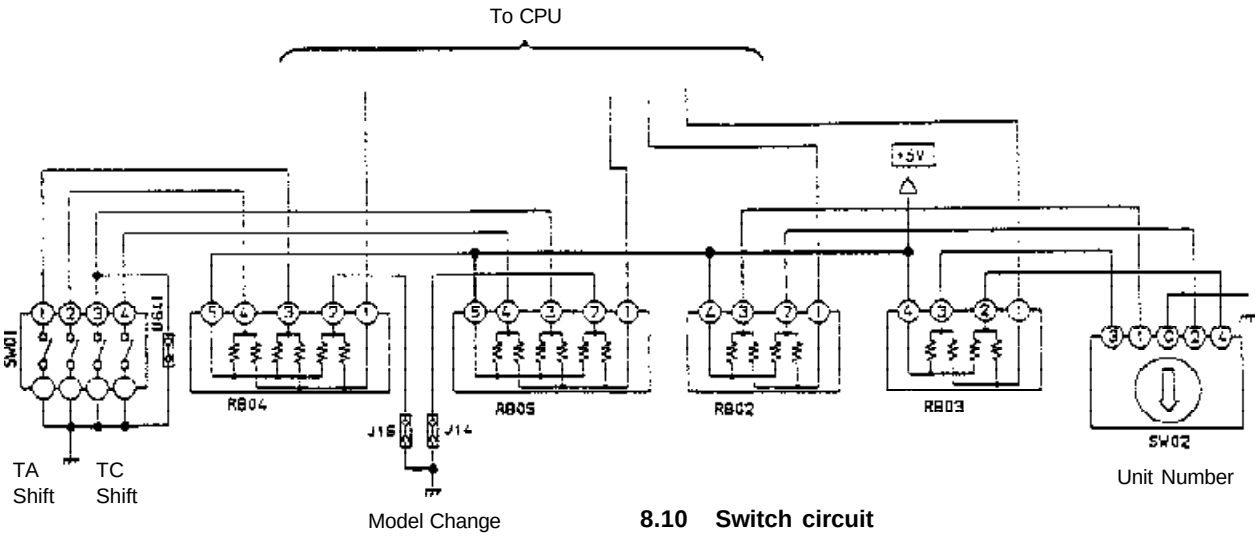




8.9 Relay circuit

The relay circuit consists of the diagram above. The relay performs the following functions:

RY01 : Main switching relay
RY02 : Changing over H/M of fan
RY03 : L tap of fan
RY04 : UL tap of fan
RY11 : Turning louver on and off
RY14 : Turning drain pump on and off

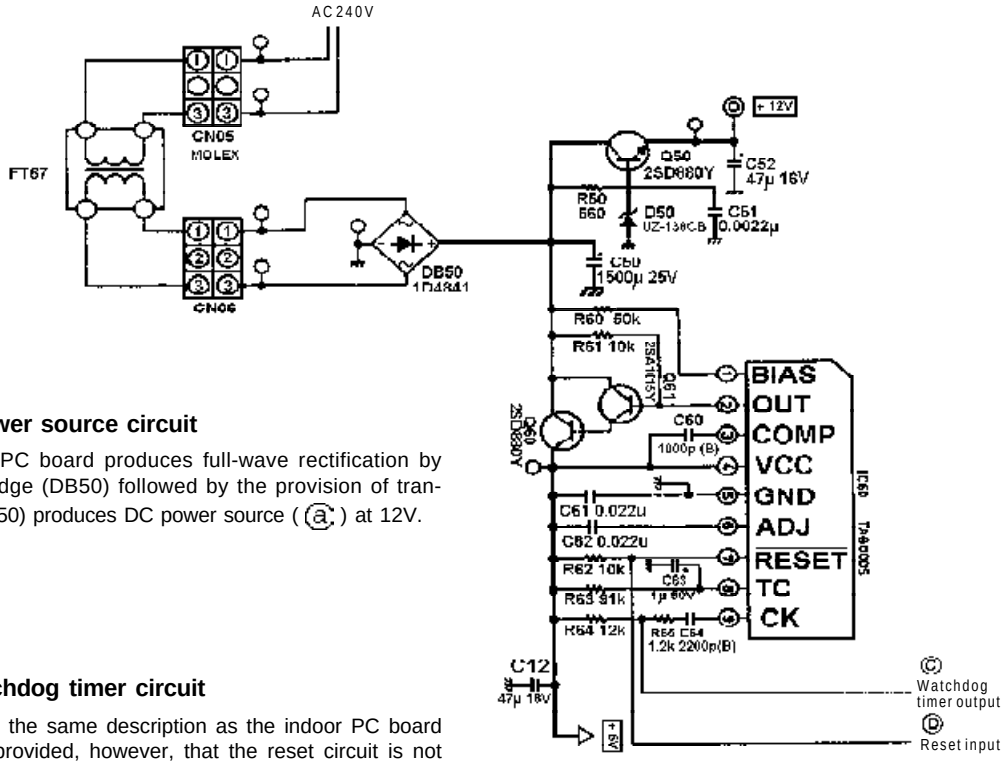


8.10 Switch circuit

TA shift, TC shift and unit No. are changed over by the switch.

TA shift and TC shift are set in factory with unit No. at “1”.

In servicing, the setting should be made to the same TA/TC shift as the PC board attached originally.
In case of operating one single unit, unit No. “1” will do. With the operation of many units (multi units control) the unit No. should be adjusted in such a way as 1, 2, 3 .....

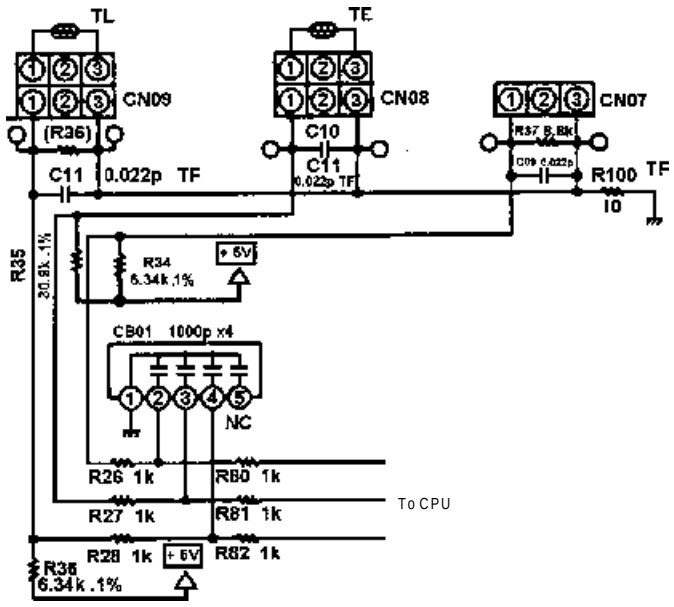


9.3 12V power source circuit

Outdoor PC board produces full-wave rectification by diode bridge (DB50) followed by the provision of transistor (Q50) produces DC power source (ⓐ) at 12V.

9.4 5V watchdog timer circuit

Basically, the same description as the indoor PC board applies, provided, however, that the reset circuit is not added to the outdoor side.



9.5 Sensor circuit

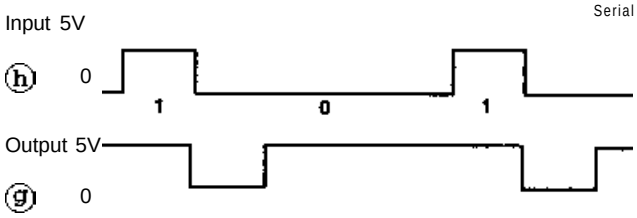
This circuit detects the temperature by dividing voltage with resistance and sensor and bringing the voltage value into CPU, using the characteristics of the sensor that resistance varies with different temperatures.
TE is for defrosting, while TL is for low ambient cooling operation.
The following voltages are produced at each of the temperatures.

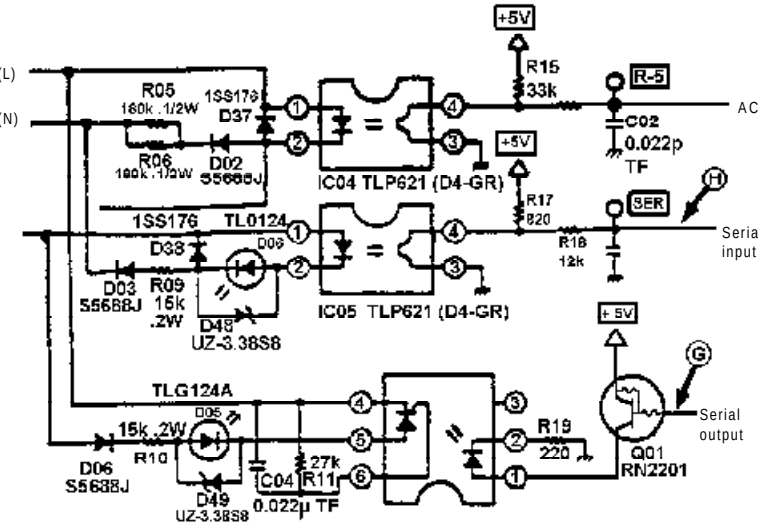
	0°C	25°C
TE ⓔ	2.3V	3.8V
TL ⓕ	2.3V	3.8V

When ⓔ / ⓕ are at GND or 5V, the sensors are either open or short-circuited.

9.6 Serial signal circuit (between indoor and outdoor units)

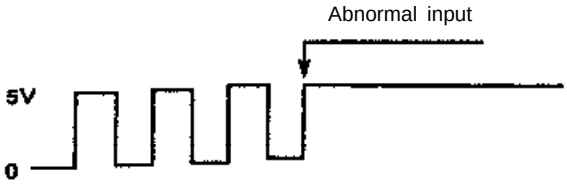
Transmits and receives the signals between indoor and outdoor units in serial signals. As 230V is used for transmitting the signal, the microcomputer section is insulated with photo-coupler with 5V being supplied.

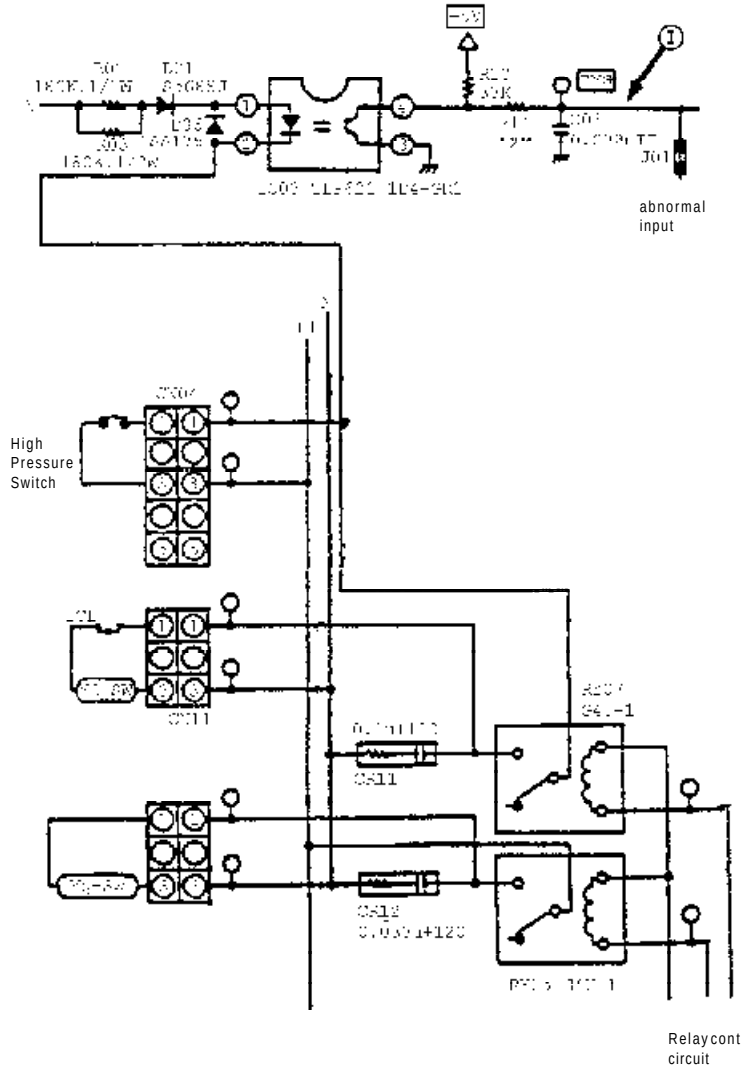




9.7 Abnormality-detecting circuit

When high pressure switch is operated, abnormality is detected to stop the compressor.





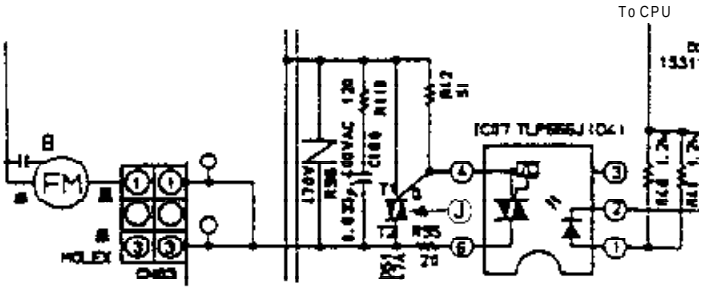
9.8 Relay circuit

The relay circuit consists of the diagram on the right-hand side.

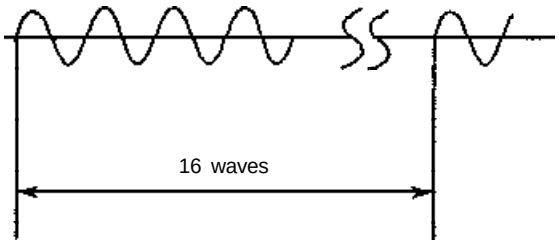
RY05 : 4-way valve ON/OFF
RY07 : Magnetic switch ON/OFF

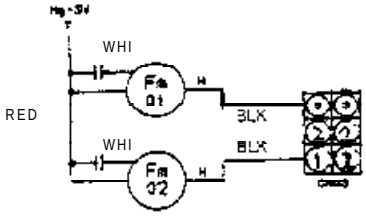
9.9 Fan speed control circuit

The fan speeds are controlled by triac IC07. This allows the fan to operate at any one of 16 speeds. This function only occurs when the unit is in the cooling mode, zero waves equates to fan stop.



Waveform obtained between (J) and T.
Example shown is for 4 waves.

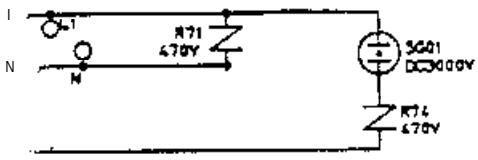




(Wiring for 2 fan motors)

9.10 Lightning surge protection circuit

The circuit on the right, protects the PCB from damage caused by a lightning surge. Varistors are connected between the live and neutral and live and earth lines to protect against voltage surges.



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10. OPERATION OF AIR CONDITIONER FROM OUTDOOR UNIT

It is possible to operate the air conditioner from the outdoor unit using switches provided on the outdoor PCB.

① Set dip-switch (DSW01) bits 1 & 2 to ON position.

② STOP 10 OPERATION
(orange LED off → orange LED flashing)

Apply Short a short across CN28 and CN29 until D08 Led illuminate, remove the short. The led will then extinguish and the indoor unit will start. After a couple of minutes the outdoor unit will start, LEDs D07 and D10 will illuminate.

OPERATION STOP
(orange LED flashing → orange LED off)

Short pins CN28 with CN29, LEDs D08 and D10 will extinguish. After indoor unit has stopped D07 will extinguish.

③ Reset DSW01 bits 1 & 2 to OFF position for normal operation.

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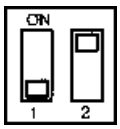
11. EMERGENCY OPERATION

If the air conditioner develops a fault which stops it from operating normally, it is possible to operate the air conditioner using change-over connectors incorporated into the units. In this case, operation of the air conditioner is controlled by switching on and off the power supply. Details of how to change-over the units to operate in the emergency mode are shown below:

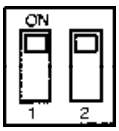
① Switch off the power supply to the outdoor unit.

② Remove the electrical parts cover from the indoor unit. Pull out the connector of R phase (red) lead wire from terminal ① and connect it with the connector of lead wire for fan motor K1 output (red).

Note : If the indoor unit is a cassette model, the float switch connector must be removed from the PCB. Replace the electrical parts cover on the indoor unit. On the outdoor unit PCB, change the switch settings on dip switch DSW01 as follows:



Cooling Mode



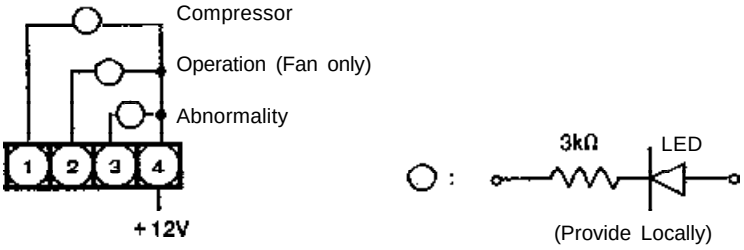
Heating Mode

③ Switch on the power supply to the outdoor unit.

12. APPLIED CIRCUIT

(1) Display output
CN13

An auxiliary display output circuit (+12V) is available at CN13 on the Indoor PC Board to display the operation for compressor, operation (Fan only) and abnormality.



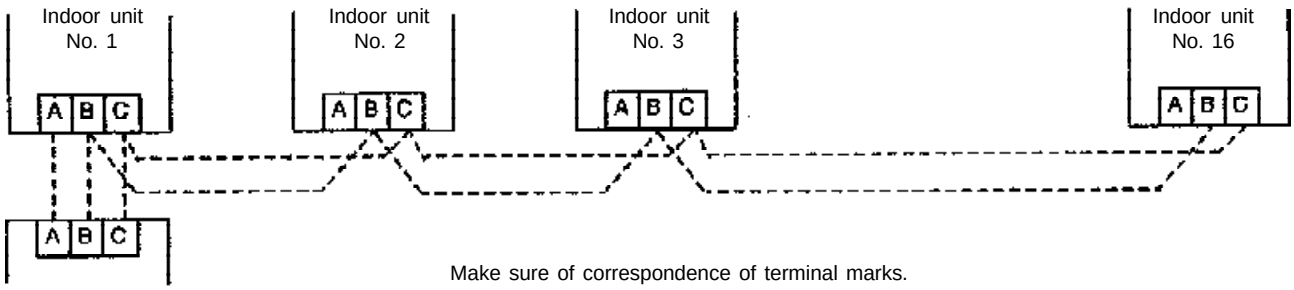
13. WIRING FOR GROUP OPERATION

Up to 16 units can be controlled as a group by one remote controller.

① Align the phase sequence of the power supply to all outdoor units.

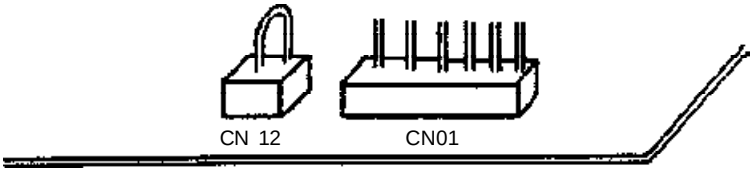
② Connect the terminals A, B, C on both of the remote controller and the indoor unit of No. 1 unit.

③ Connect terminals B, C on both indoor units of No. 1 and No. 2 unit. Then connect in the same way No. 2 and No. 3, No. 3 and No. 4 .... up to No. 16 unit.

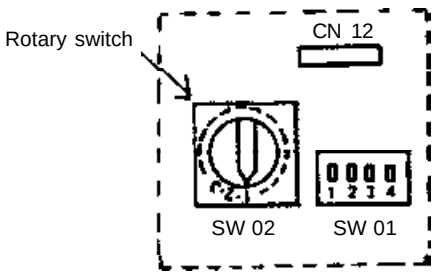


Make sure of correspondence of terminal marks.

④ Remove the CN12-connector on the indoor PC board of No. 2 unit and up to No. 16 unit to prevent malfunction.

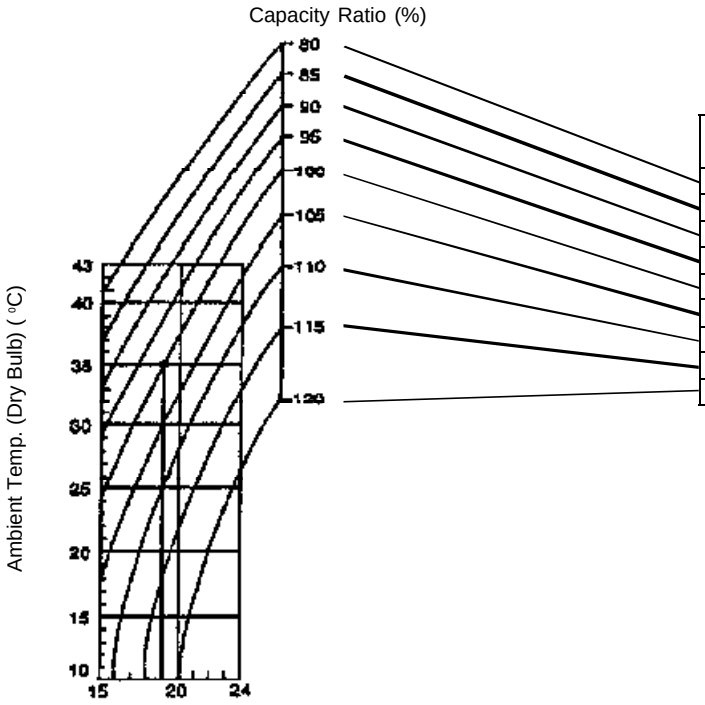


⑤ Set each unit No. rotary switch on the indoor PC board. The unit connected to the remote controller should be set as No. 1 unit. Then set No. 2 and up to No. 16 so that start time of each unit is respectively delayed to prevent simultaneous starting current.



14. PERFORMANCE CHARACTER

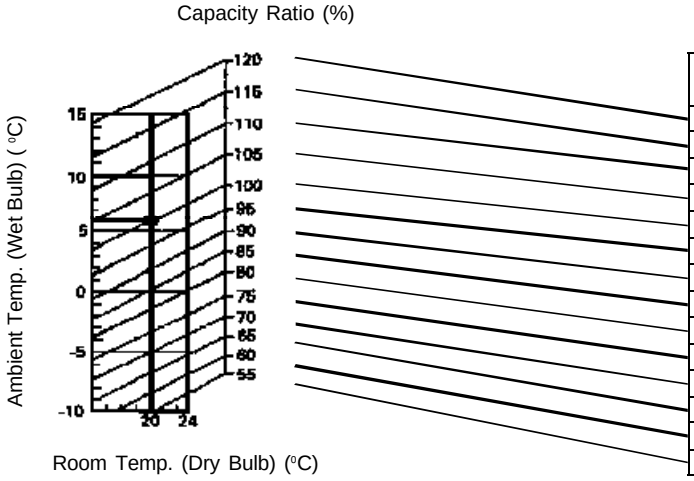
14.1 Cooling capacity



(KW)

RAV-162AH-PE	RAV-262AH-PE RAV-262AH8-PE	RAV-362AH8-PE	RAV-462AH8-PE
3.60	5.68	8.00	10.00
3.82	6.04	8.50	10.63
4.05	6.39	9.00	11.25
4.28	6.75	9.50	11.88
4.50	7.10	10.00	12.50
4.73	7.46	10.50	13.13
4.95	7.81	11.00	13.75
5.18	8.17	11.50	14.38
5.40	8.52	12.00	15.00

14.2 Heating capacity



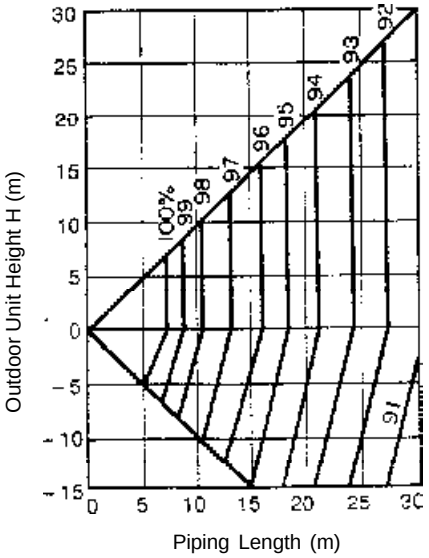
(KW)

RAV-162AH-PE	RAV-262AH-PE RAV-262AH8-PE	RAV-362AH8-PE	RAV-462AH8-PE
6.00	9.48	12.96	16.56
5.75	9.09	12.42	15.87
5.50	8.69	11.88	15.18
5.25	8.30	11.34	14.49
5.00	7.90	10.80	13.80
4.75	7.51	10.26	13.11
4.50	7.11	9.72	12.42
4.25	6.72	9.18	11.73
4.00	6.32	8.64	11.03
3.75	5.93	4.10	10.35
3.50	5.53	7.56	9.66
3.25	5.14	7.02	8.97
3.00	4.74	6.48	8.28
2.75	4.35	5.94	7.59

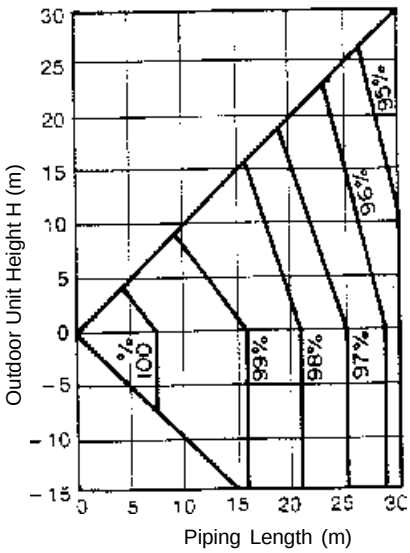
14.1 Cooling capacity

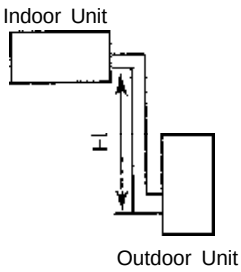
RAV-162AH-PE
RAV-262AH-PE
RAV-262AH8-PE

Cooling Capacity Ratio



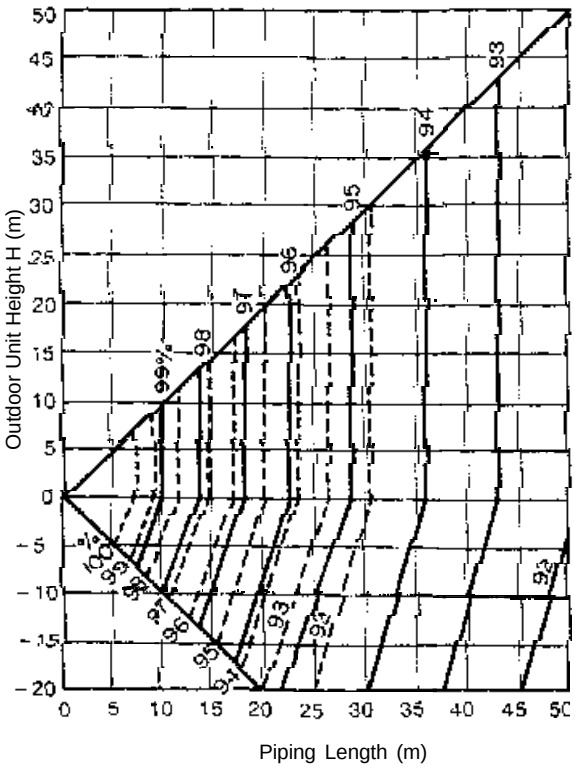
Heating Capacity Ratio



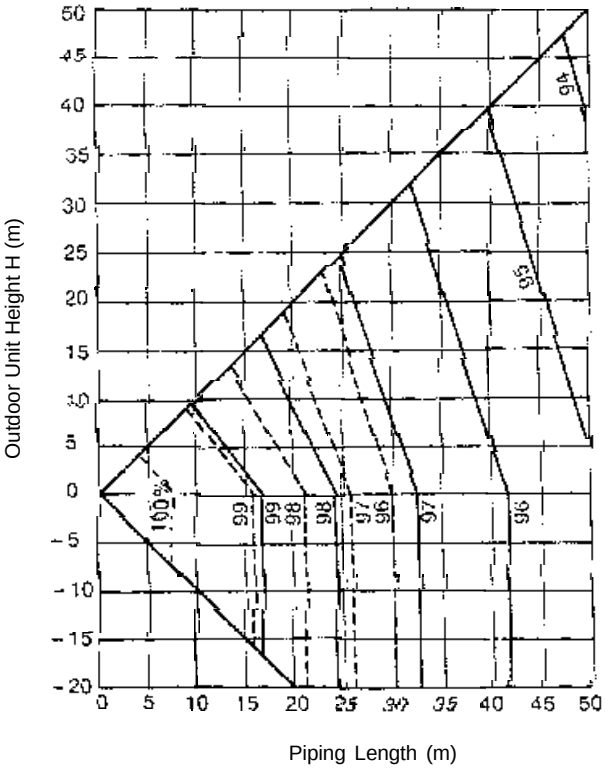


RAV-362AH8-PE
RAV-462AH8-PE

Cooling Capacity Ratio



Heating Capacity Ratio



The broken line shows in case the piping length is 30m or less.

14.4 Piping length/additional refrigerant volume

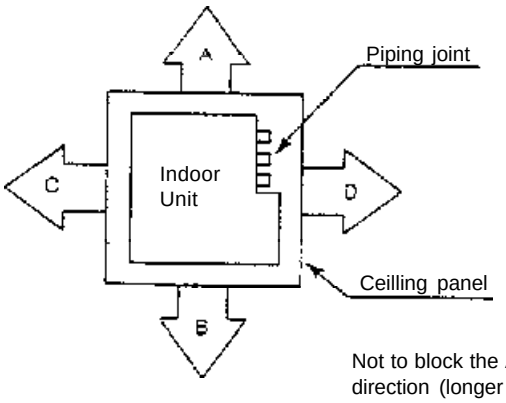
Piping length less than (m) / Model (RAV-)	20	Additional amount of refrigerant at installation site (kg)						Recharge amount of interchange time (kg)									
		25	30	35	40	45	50	5	10	15	20	25	30	35	40	45	50
162AH-PE	Filled at factory	0.15	0.35					1.35	1.45	1.5	1.6	1.75	1.95				
262AH-PE 262AH8-PE		0.3	0.6					2.2	2.25	2.3	2.35	2.65	2.95				
362AH8-PE		0.25	0.5	0.75	1.0	1.25	1.5	3.0	3.15	3.25	3.4	3.65	3.9	4.15	4.4	4.65	4.9
462AH8-PE		0.25	0.5	0.75	1.0	1.25	1.5	3.6	3.7	3.8	3.9	4.15	4.4	4.65	4.9	5.15	5.4

- The amount of refrigerant put into the outdoor unit at the factory is equivalent to the one that fills up 20m length of refrigerant pipe.
- If the length of refrigerant pipe is 20m or less, addition of refrigerant at the installation site is unnecessary. If the length of the pipe exceeds 20m, add the refrigerant R-22.
- Overcharge or undercharge of refrigerant in the outdoor unit will cause malfunction of the compressor. The prescribed amount of the replenishment of the refrigerant is shown in the table above.
  The permissible amount of refrigerant is the prescribed amount ±50g.
- For RAV-362AH8-PE and RAV-462AH8-PE, the length of pipe exceeds 30m the size of pipe at the gas side must be raised one rank (eq 19.0 → 22.2).

14.5 Air flow distribution

RAV-132UH-PE
RAV-162UH-PE
RAV-262UH-PE
RAV-362UH-PE
RAV-462UH-PE

Top view

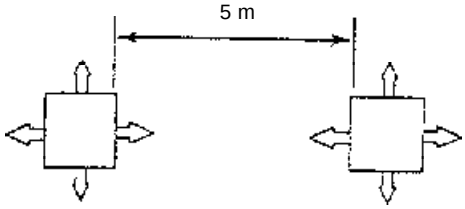


Not to block the A and B direction (longer side).

Air flow direction & volume ratio

MODEL	No. of discharge way	4-way				3-way			2-way	
	Air flow direction	A	B	C	D	A	B	C	A	B
RAV-132/162/262UH-PE	Air volume ratio (%)	30	30	30	10	33	33	33	50	50
RAV-362/462UH-PE	Air volume ratio (%)	40	40	10	10	40	40	20	50	50

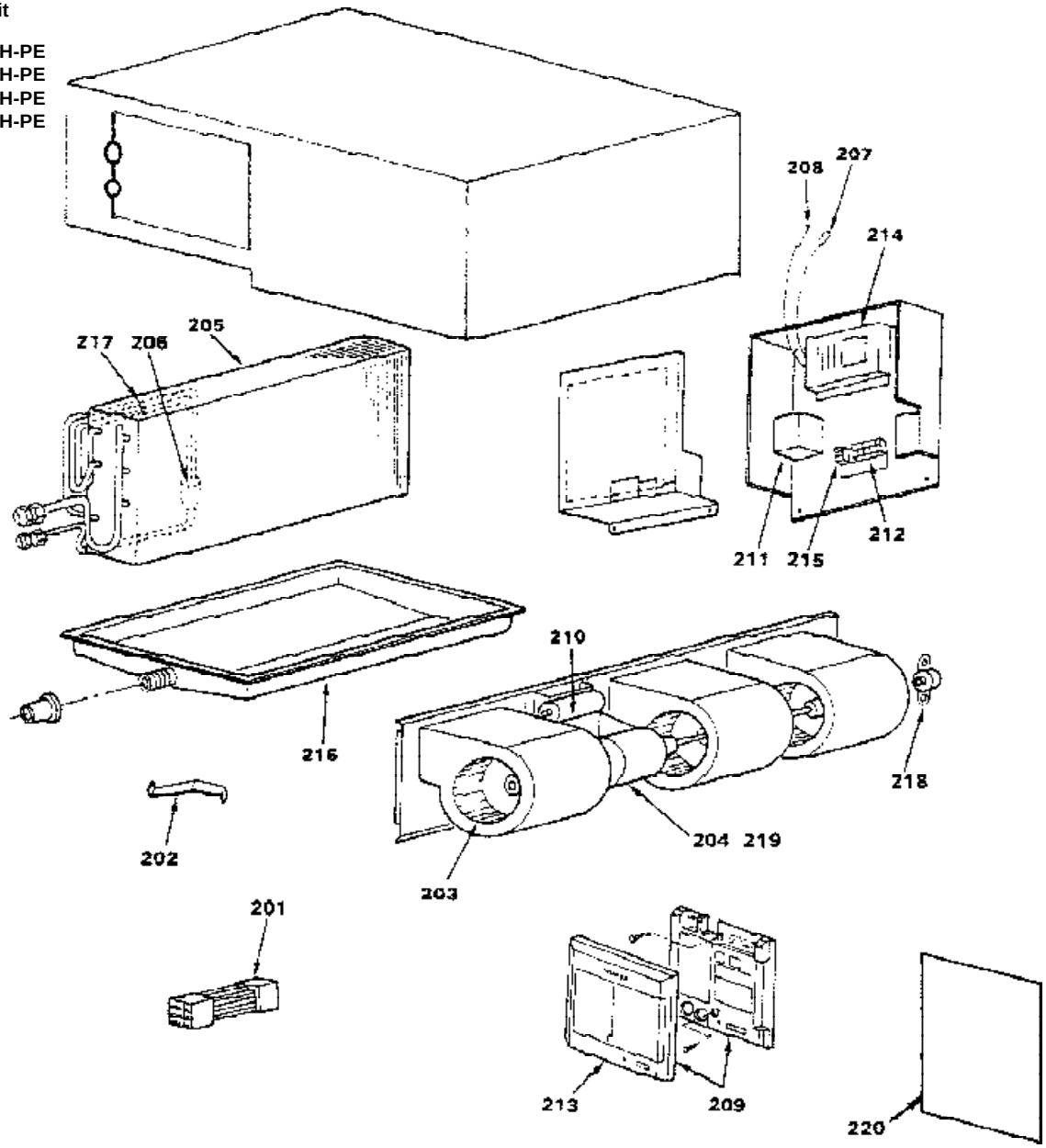
(Note)
When installing more than one unit in the same room keep a 5m distance between each unit.



15. EXPLODED VIEWS AND PARTS LISTS

15.1 Indoor Unit

RAV-162BH-PE
RAV-262BH-PE
RAV-362BH-PE
RAV-462BH-PE

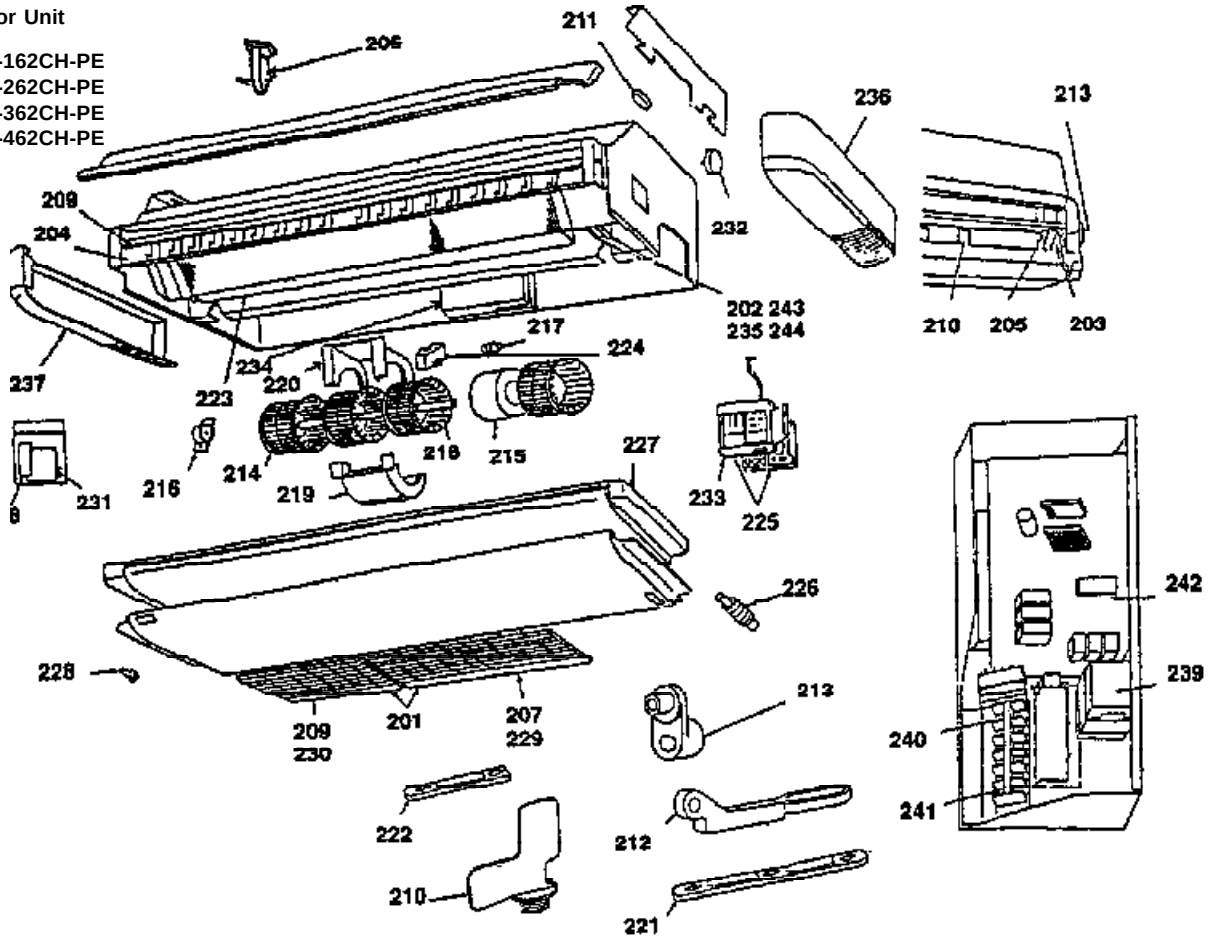


Location No.	Part No.	Description
201	43160394	Connector-9P
202	43019604	Holder, Sensor
203	43120149	Fan, Multi-Blade
204	43A21009	Motor, Fan (RAV-162BH-PE)
	43121516	Motor, Fan (RAV-262BH-PE)
	43121528	Motor, Fan (RAV-362BH-PE)
	43121535	Motor, Fan (RAV-462BH-PE)
205	43A44002	Evaporator (RAV-162BH-PE)
	43144679	Evaporator (RAV-262BH-PE)
	43144692	Evaporator (RAV-362BH-PE)
	43144693	Evaporator (RAV-462BH-PE)
206	43A47001	Distributor (strainer) (RAV-162BH-PE)
	43147443	Distributor (strainer) (RAV-262BH-PE)
	43147532	Distributor (strainer) (RAV-362BH-PE)
	43147533	Distributor (strainer) (RAV-462BH-PE)
207	43050377	Sensor(TA)
208	43150199	Sensor(TC)
209	43A69004	Remote Controller

Location No.	Part No.	Description
210	43155080	Capacitor, Electrolytic (RAV-162BH-PE)
	43155096	Capacitor, Electrolytic (RAV-262/362BH-PE)
	43155097	Capacitor, Electrolytic (RAV-462BH-PE)
211	43A58002	Transtormer, Power
212	43A60001	Terminal, 4P
213	43A62001	Cover, Remocon
214	43A69002	PC, Board
215	43A60002	Terminal, 3P
216	43191304	Drain Pan (RAV-162BH-PE)
	43191305	Drain Pan (RAV-262BH-PE)
	43191310	Drain Pan (RAV-362/462BH-PE)
217	43047527	Capillary Tube. 2.0DIA (RAV-162/262/362BH-PE)
	43146432	Capillary Tube. (RAV-462BH-PE)
218	42125135	Bearing
219	43125137	Coupling
220	43A88002	Manual

15.2 Indoor Unit

RAV-162CH-PE
RAV-262CH-PE
RAV-362CH-PE
RAV-462CH-PE

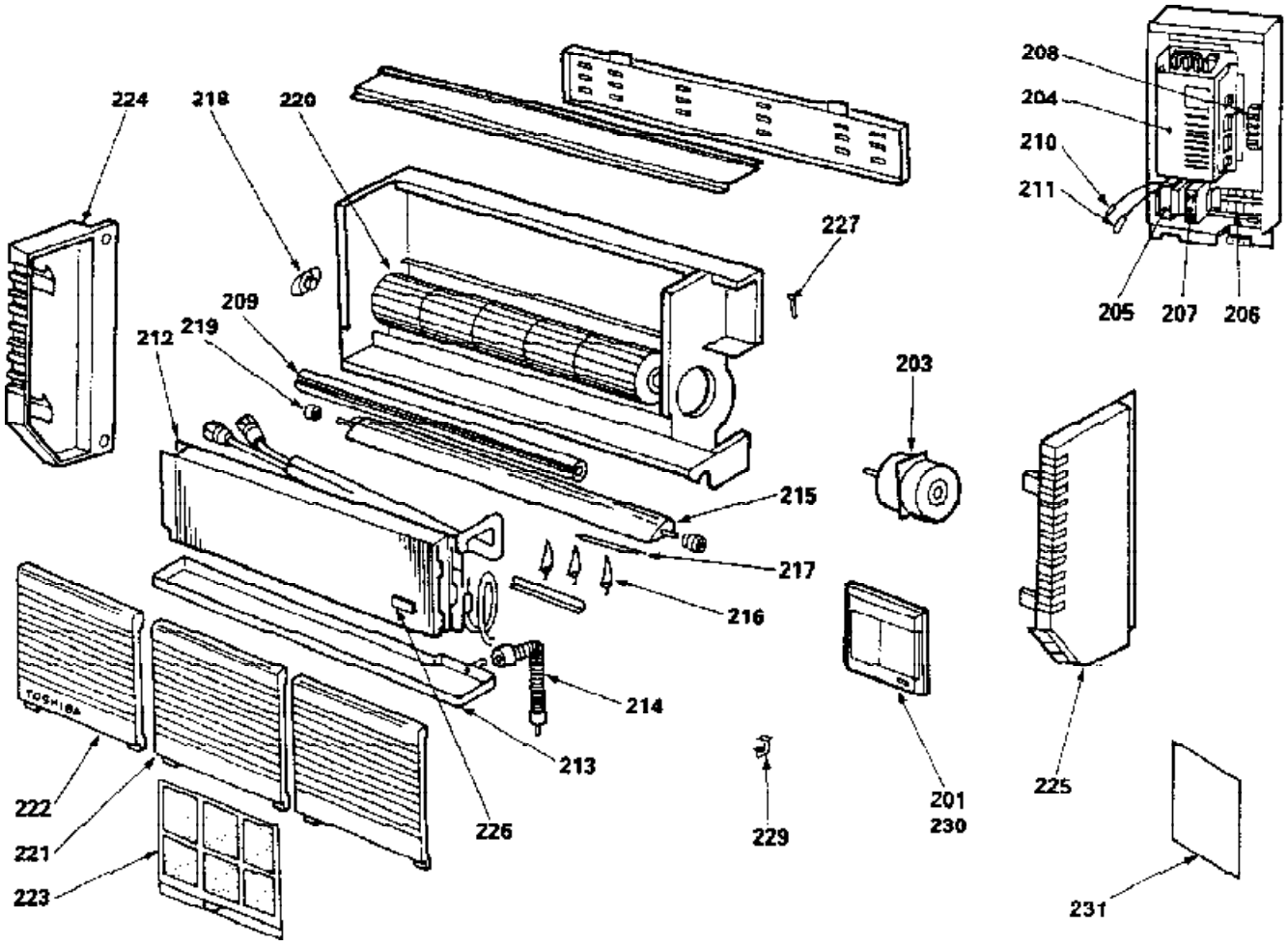


Location No.	Part No.	Description	
201	43107214	Hinge	
202	43107215	Sensor Fix Plate	
203	43107216	Spring	
204	43107223	Grille Shaft Left	
205	43107222	Grille Shaft Right	
206	43107224	Grille Support Centre	(RAV-362/462CH-PE)
207	43109321	Inlet Grille Large	
208	43109322	Inlet Grille Small	
209	43109324	H Grille Asm	(RAV-162CH-PE)
209	43109320	H Grille Asm	(RAV-262CH-PE)
209	43109327	H Grille Asm	(RAV-362CH-PE)
209	43109328	H Grille Asm	(RAV-462CH-PE)
210	43109329	Vertical Grille	
211	43119373	Bolt Cover	
212	43119393	Shaft Holder	
213	43119394	Lever	
214	43120172	Fan, Sirocco	(RAV-162/262CH-PE)
214	43120174	Multi Blade Fan	(RAV-362/462CH-PE)
215	43A21004	Fan Motor	(RAV-162CH-PE)
215	43A21005	Fan Motor	(RAV-262CH-PE)
215	43A21006	Fan Motor	(RAV-362CH-PE)
215	43A21007	Fan Motor	(RAV-462CH-PE)
216	43125131	Bearing	
217	43125142	Coupling	
218	43125143	Shaft SS	(RAV-162CH-PE)
218	43125141	Shaft SS	(RAV-262CH-PE)
218	43125145	Shaft SS	(RAV-362CH-PE)
218	43125144	Shaft SS	(RAV-462CH-PE)
219	43126127	Fan Case Lower	(RAV-162/262CH-PE)
219	43126129	Fan Case Lower	(RAV-362/462CH-PE)
220	43126128	Fan Case Upper	(RAV-162/262CH-PE)
220	43126130	Fan Case Upper	(RAV-362/462CH-PE)
221	43139098	Connect Bar	
222	43A39001	Connect Bar	

Location No.	Part No.	Description	
223	43144639	Asm Evaporator	(RAV-162CH-PE)
223	43A44004	Asm Evaporator	(RAV-262CH-PE)
223	431A4005	Asm Evaporator	(RAV-362CH-PE)
223	43144650	Asm Evaporator	(RAV-462CH-PE)
224	43155138	MF Capacitor	(RAV-162/262/362CH-PE)
224	43155120	MF Capacitor	(RAV-462CH-PE)
225	43A69004	Remote Control	
226	43170197	Asm Hose	
227	43172121	Asm Drain Pan	(RAV-162CH-PE)
227	43172119	Asm Drain Pan	(RAV-262CH-PE)
227	43172122	Asm Drain Pan	(RAV-362CH-PE)
227	43172123	Asm Drain Pan	(RAV-462CH-PE)
228	43179107	Plug	
229	43180283	Air Filter Small	
230	43180284	Air Filter Large	
231	43A88002	Manual	
232	43A21008	Geared Motor	
233	43A62001	Cover, Remocon	
234	43150148	TA Sensor	
235	43A50002	TC Sensor	
236	43102624	Side Cover Right Asm	
237	43102625	Side Cover Left Asm	
238	43117812	H Plate	
239	43A58002	Transformer	
240	43A60002	Terminal 3P	
241	43A60001	Terminal 4P	
242	43A69002	PC Board	
243	43A47004	Asm Distributor	(RAV-162CH-PE)
243	43047492	Asm Distributor	(RAV-262CH-PE)
243	43A47006	Asm Distributor	(RAV-362CH-PE)
243	43A47007	Asm Distributor	(RAV-462CH-PE)
244	43047492	Capillary Tube 1.7 Dia	(RAV-162CH-PE)
244	43146432	Capillary Tube 2.2 Dia	(RAV-262CH-PE)
244	43047527	Capillary Tube 2.0 Dia	(RAV-362/462CH-PE)

15.3 Indoor Unit

RAV-162KH(W)-PE/RAV-262KH(W)-PE

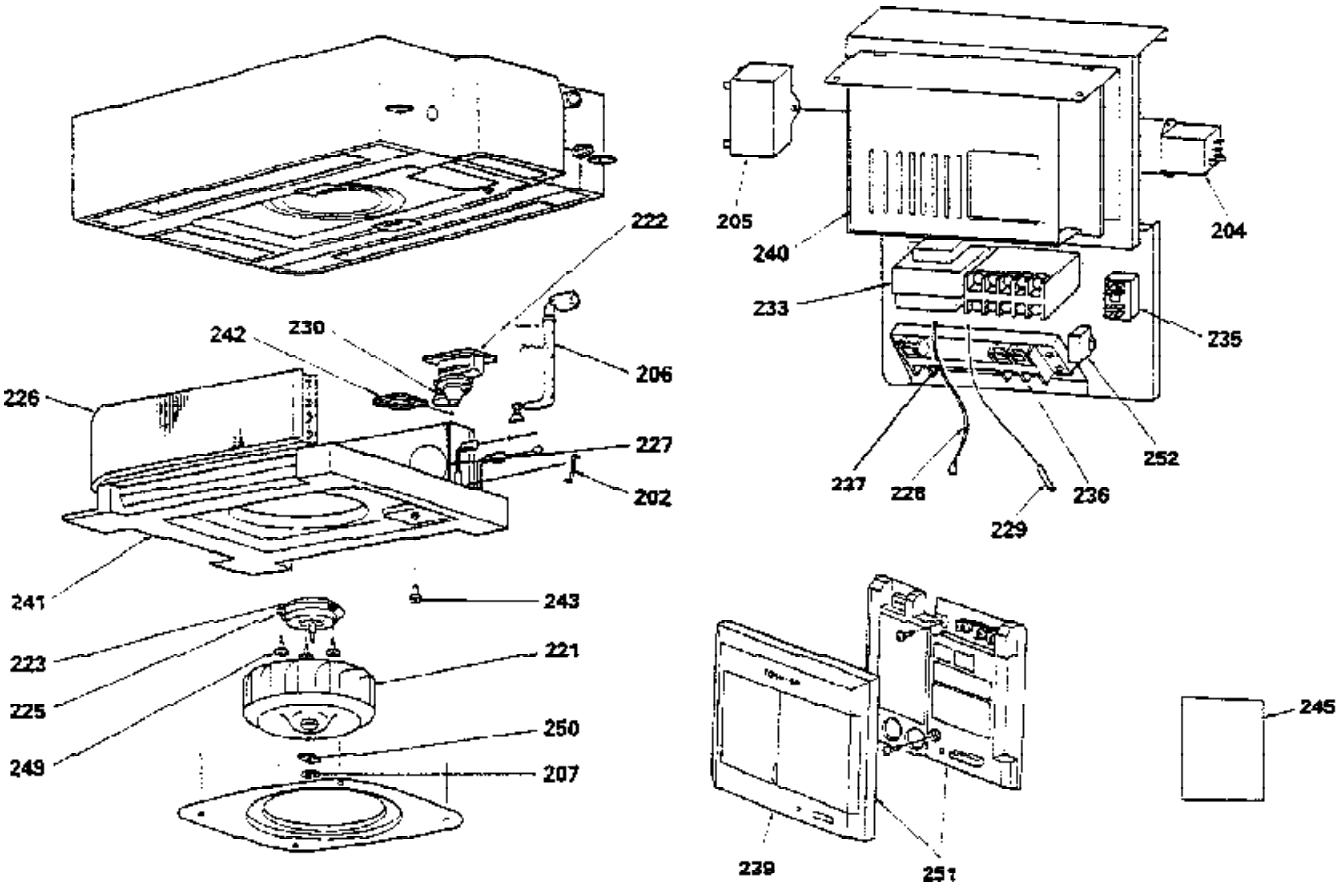


Location No.	Part No.	Description	
201	43A69004	Remote Controller	
203	43121474	Motor	(RAV-162KH(W)-PE)
203	43121491	Motor	(RAV-262KH(W)-PE)
204	43A69002	PC Board	
205	43A58002	Transformer, Power	
206	43A60001	Terminal, 4P	
207	43155101	Capacitor, Electrolytic	
208	43A60002	Termimal, 3P	
209	43122028	Nose, Fan Case	(RAV-162KH(W)-PE)
209	43122029	Nose, Fan Case	(RAV-262KH(W)-PE)
210	43150118	Sensor, Room Temp.	
211	43150116	Sensor, Heat Exch.	
212	43144667	Evaporator	(RAV-162KH(W)-PE)
212	43144666	Evaporator	(RAV-262KH(W)-PE)
213	43172112	Drain Pan	(RAV-162KH(W)-PE)
213	43172114	Drain Pan	(RAV-262KH(W)-PE)
214	43170182	Hose, Drain	
215	43109363	Grille	(RAV-162KH(W)-PE)

Location No.	Part No.	Description	
215	43109364	Grille	(RAV-262KH(W)-PE)
216	43109280	Grille, Vertical	
217	43139098	Connection Rod	
218	43022189	Bearing	
219	43196083	Bushing	
220	43120135	Fan, Cross Flow	(RAV-162KH(W)-PE)
220	43120136	Fan, Cross Flow	(RAV-262KH(W)-PE)
221	43109361	Grille, Inlet	
222	43109362	Grille, Inlet	
223	43180290	Air-Filter	
224	43102629	Cabinet, Side, Left	
225	43102628	Cabinet, Side, Right	
226	43063175	Holder, Sensor	
227	43019604	Holder, Sensor	
229	43107234	Holder, Grille	(RAV-262KH(W)-PE)
230	43A62001	Cover Remocon	
231	43A88002	Manual	

15.4 Indoor Unit

RAV-132UH-PE
RAV-162UH-PE
RAV-262UH-PE

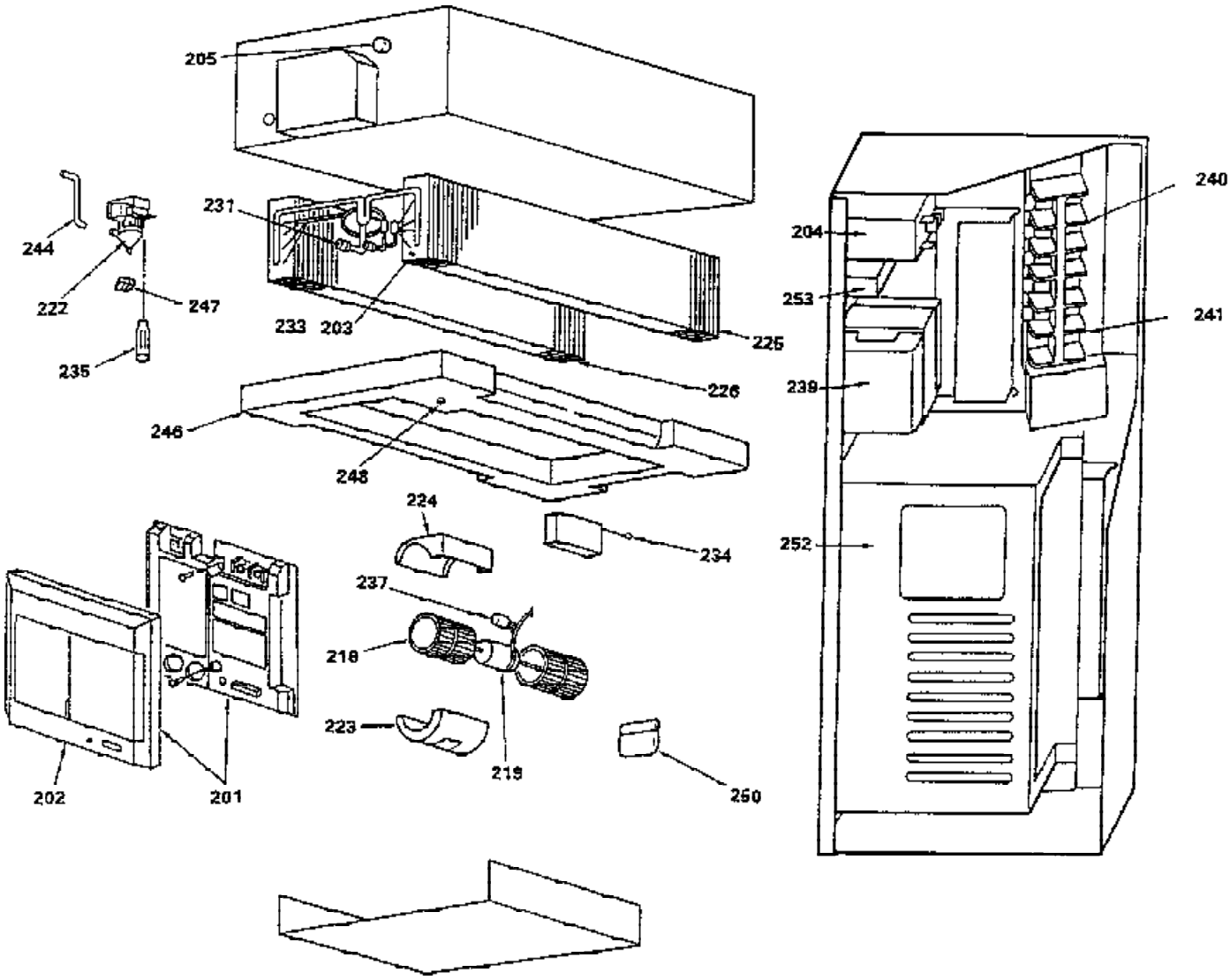


Location No.	Part No.	Description	
202	43019604	Holder, Sensor (TC)	
204	43154141	Relay	
205	43055275	Capacitor, Electrolytic	
206	43070146	Hose, Drain	
207	43097166	Nut	
221	43120166	Radial Fan	
222	43121627	Drain, Pump	
223	43A21001	Motor, Fan	
225	43139103	Rubber, Buffer	
226	43A44001	Evaporator	(RAV-132UH-PE)
	43144665	Evaporator	(RAV-162UH-PE)
	43144664	Evaporator	(RAV-262UH-PE)
227	43146432	Capillary Tube	(RAV-132UH-PE)
	43047527	Capillary Tube	(RAV-162UH-PE)
	43047492	Capillary Tube	(RAV-262UH-PE)
228	43150118	Sensor (TA)	

Location No.	Part No.	Description	
229	43150199	Sensor (TC)	
230	43151217	Float Switch	
233	43A58002	Transformer, Power	
235	43160251	Terminal Block	
236	43A60001	Terminal 4P	
237	43A60002	Terminal 3P	
239	43A62001	Cover, Remocon	
240	43A69002	PC Board	
241	43172118	Drain Pan	(RAV-132UH-PE)
	43172117	Drain Pan	(RAV-162/262UH-PE)
242	43179104	Drain Filter	
243	43179105	Plug	
245	43A88002	Manual	
249	43107212	Bolt	
250	43139105	Washer	
251	43A69004	Remote Controller	
252	43033084	Spark-killer	

15.5 Indoor Unit

RAV-362UH-PE
RAV-462UH-PE



Location No.	Part No.	Description	
201	43A69004	Remote Controller	
202	43A62001	Cover, Remocon	
203	43019604	Holder, Sensor	
204	43154141	Relay	
205	43070146	Hose, Drain	
218	43120164	Fan, Multi-blade	
219	43A21010	Motor, Fan	
222	43121627	Drain, Pump	
223	43126125	Fan Case Lower	
224	43126126	Fan Case Upper	
225	43144661	Evaporator, Right	(RAV-362UH-PE)
225	43144660	Evaporator, Right	(RAV-462UH-PE)
226	43144663	Evaporator, Left	(RAV-362UH-PE)
226	43144662	Evaporator, Left	(RAV-462UH-PE)
231	43047527	Capillary Tube 2.0DIA	
233	43150111	Sensor	
234	43150148	Sensor	

Location No.	Part No.	Description	
235	43151203	Float Switch	
237	43055292	Capacitor, Electrolytic	(RAV-362UH-PE)
237	43155080	Capacitor, Electrolytic	(RAV-462UH-PE)
239	43A58002	Transformer, Power	
240	43A60001	Terminal, 4P	
241	43A60002	Terminal, 3P	
244	43170192	Hose, Drain	
246	43172116	Drain Pan	
247	43179104	Drain Filter	
248	43179105	Plug	
250	43A88002	Manual	
252	43A69002	PC Board	
253	43033084	Spark-killer	

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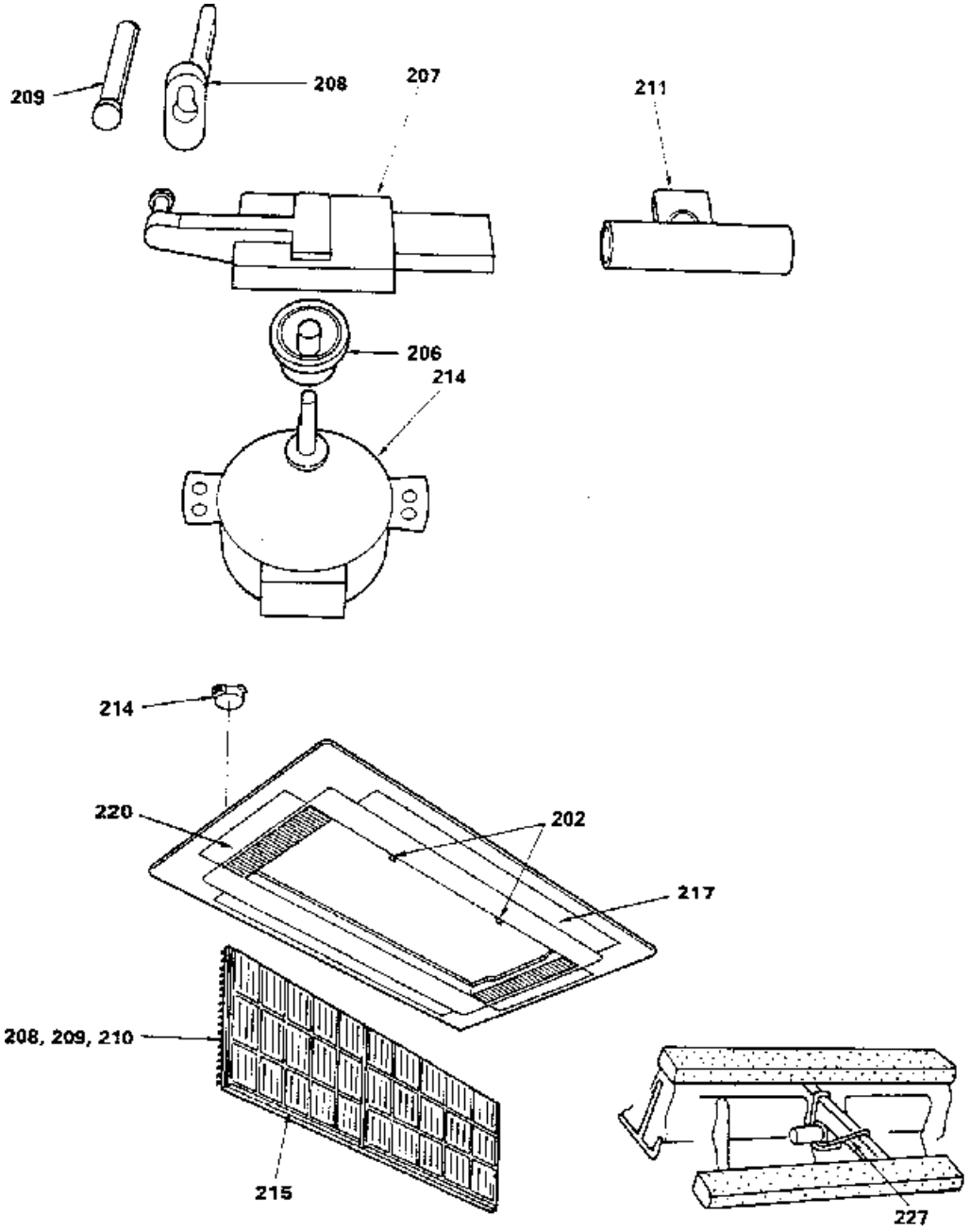
15.6 Ceiling panel

RBC-U262PG(W)-PE
RBC-U462PG(W)-PE



Location No.	Part No.	Description	
202	43407009	Grille, Catch	
206	43407024	Cam	
207	43407014	Slider	
208	43407015	Lever	
209	37507500	Lever	
210	43409063	Intake-Grill Assy	(RBC-U262PG(W)-PE)
	43409059	Intake-Grill Assy	(RBC-U462PG(W)-PE)
211	43409067	Holder. Shaft	

Location No.	Part No.	Description	
214	43121550	Geared-Motor	
215	43480533	Air-Filter	(RBC-U262PG(W)-PE)
	43480531	Air-Filter	(RBC-U462PG(W)-PE)
217	43409070	Grille, Outlet	(RBC-U262PG(W)-PE)
	43409069	Grille, Outlet	(RBC-U462PG(W)-PE)
220	43409075	Grille, Outlet, Small	
227	43497009	Spring Holder	(RBC-U462PG(W)-PE)

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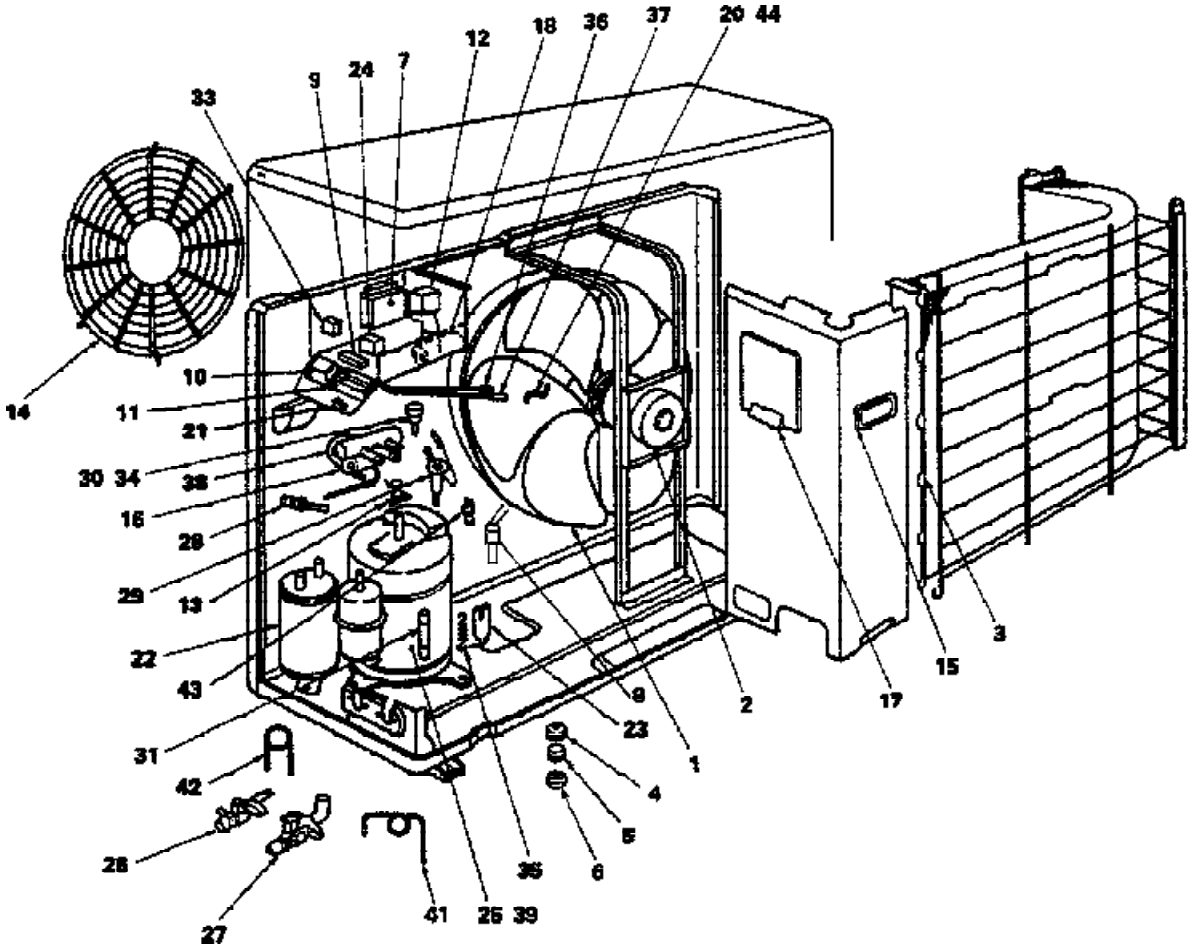
15.7 Outdoor unit

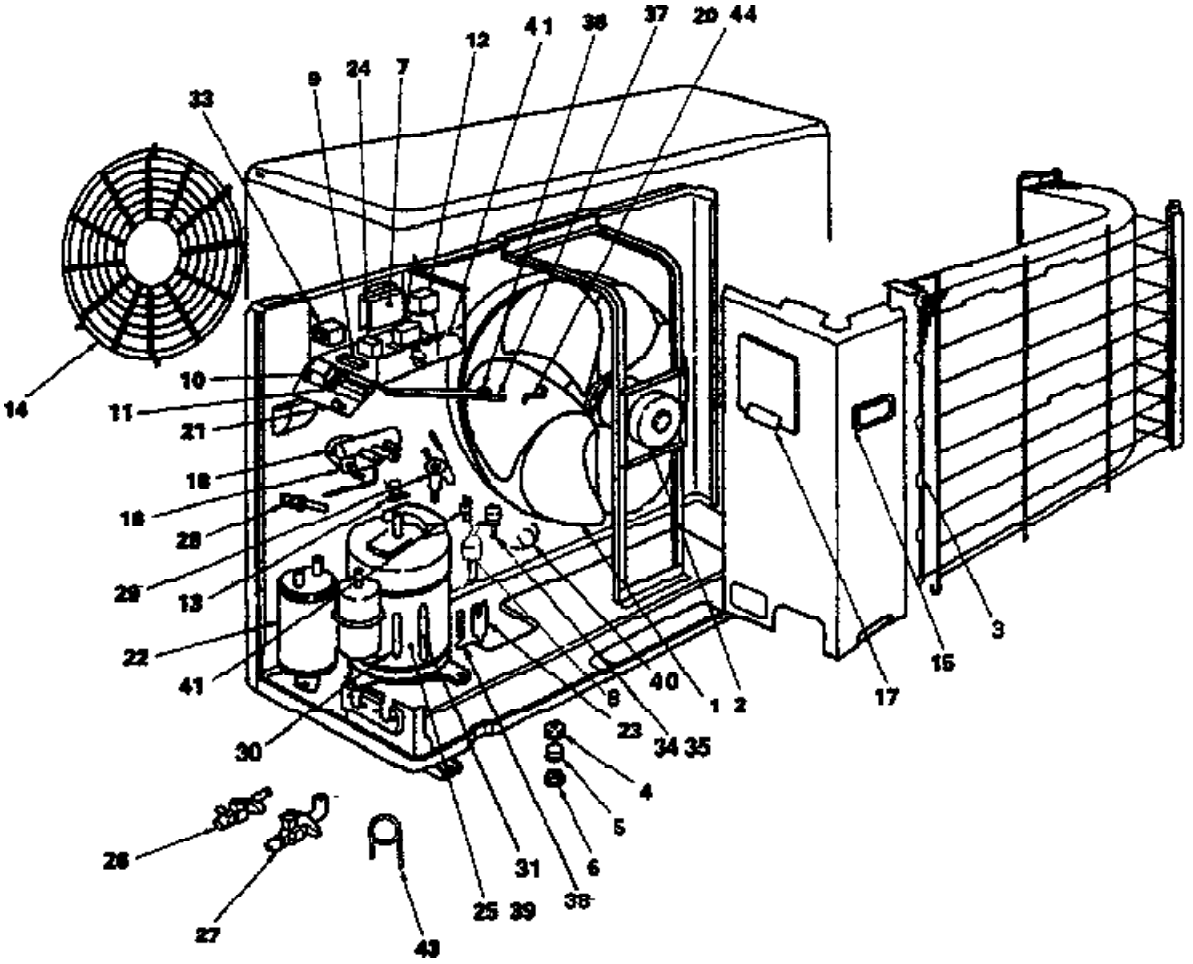
RAV-162AH-PE



Location No.	Part No.	Description
1	43120156	Fan, Propeller
2	43A21003	Motor, Fan, AC230V, 50Hz
3	43A43001	Condenser
4	43149212	Base, Spring, A
5	43049132	Spring, Buffer
6	43049132	Base, Spring, B
7	43A69003	PC Board
8	43A49001	Switch, High-Pressure
9	43060479	Terminal, 4P
10	43A60003	Terminal, 2P
11	43A60001	Terminal, 4P
12	43152334	Magnetic Contactor
13	43054286	Relay, Overload
14	43A19001	Guard, Fan
15	43119368	Hanger
16	43A46004	Solenoid Coil
17	43162027	Cover, Electric Parts
18	43155115	Capacitor, Plastic Film, 45MFD, 440V
20	43107215	Holder, Sensor (TE)
21	43169600	Holder
22	43148105	Accumulator

Location No.	Part No.	Description
23	43145082	Dryer
24	43155080	Capacitor, Electrolytic
25	43041845	Compressor, AC220/240V, 50Hz, PH250X3-4LS
26	43146454	Packed Valve (1/4")
27	43146406	Packed Valve (1/2")
28	43147321	Check Joint
29	43146424	Expansion Valve
30	43046198	Coil, 2-Way Valve
31	43146283	Checked Valve
33	43A58003	Transformer, Power
34	43046151	Valve, 2-Way
35	43193043	Spring
36	43A50001	Sensor, Cond. Out (TL)
37	43150196	Sensor, Heat Exch. (TE)
38	43146418	Valve 4-Way
39	43157167	Heater, Crankcase
41	43146459	Capillary Tube
42	44246235	Capillary Tube
43	43150122	Thermostat, Bimetal
44	43107215	Holder, Sensor (TL)

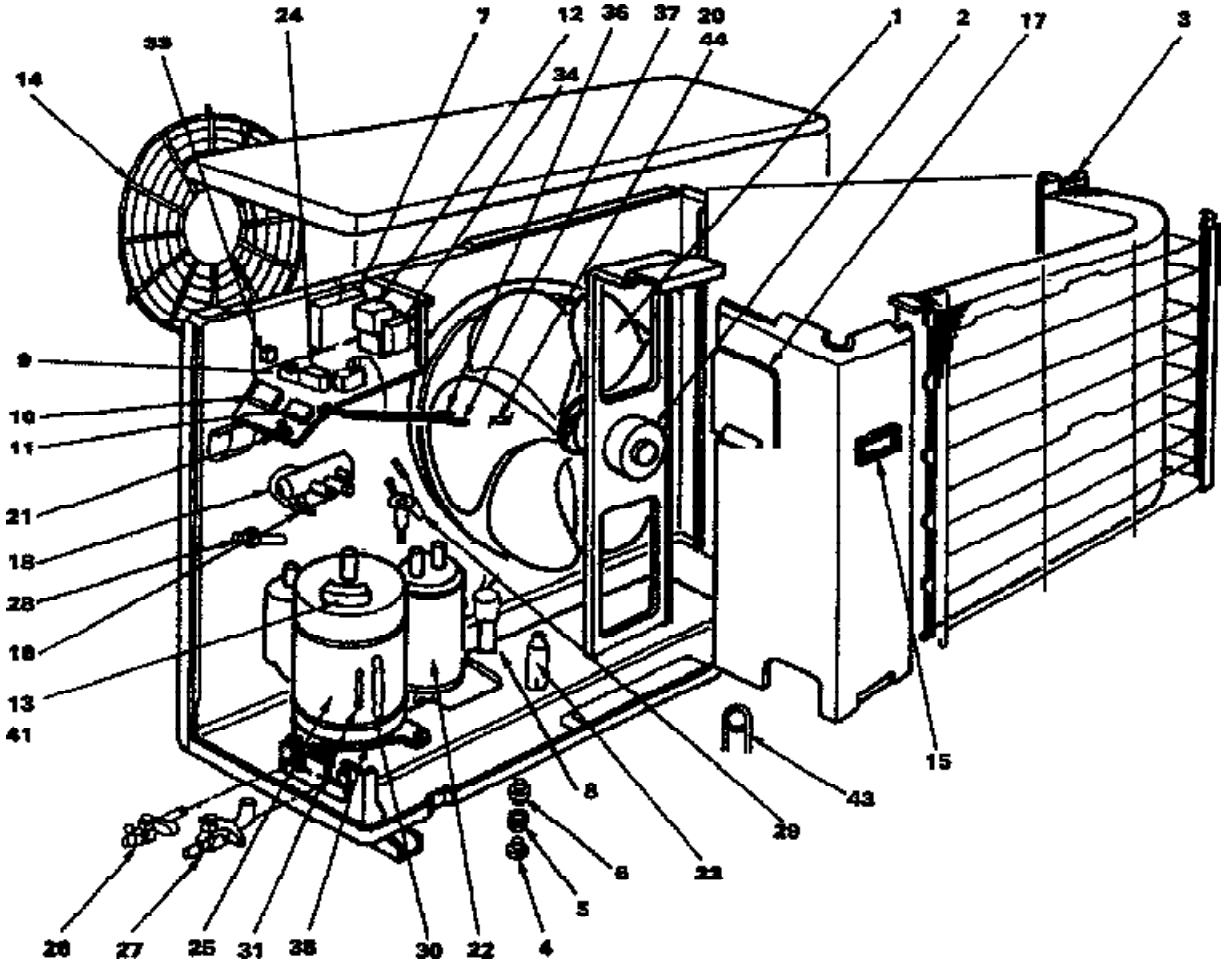
RAV-262AH-PE



Location No.	Part No.	Description
1	43120156	Fan, Propeller
2	43A21002	Motor, Fan, AC 230V, 50Hz
3	43A43002	Condenser
4	43049132	Base, Spring, B
5	43149198	Spring, Buffer
6	43149212	Base, Spring, A
7	43A69003	PC Board
8	43A49001	Switch, High-Pressure
9	43060479	Terminal, 4P
10	43A60004	Terminal, 2P
11	43A60001	Terminal, 4P
12	43152334	Magnetic Contactor
13	43150122	Thermostat, Bimetal
14	43A19001	Guard, Fan
15	43119368	Hanger
16	43A46004	Solenoid Coil
17	43162027	Cover, Electric Parts
18	43146418	Valve, 4-Way
20	43107215	Holder, Sensor (TE)
21	43169600	Holder
22	43148114	Accumulator

Location No.	Part No.	Description
23	43145082	Dryer
24	43155080	Capacitor,Plastic Film
25	43140318	Compressor, PH330X3-4MS
26	43146451	Packed Valve (3/8")
27	43146417	Packed Valve (5/8")
28	43147321	Check Joint
29	43146433	Expansion Valve
30	43046156	Checked Valve
31	43146283	Checked Valve
33	43A58003	Transforrmer, Power
34	43046151	Valve, 2-Way
35	43046198	Coil, 2-Way Valve
36	43A50001	Sensor, Cond. Out (TL)
37	43150196	Sensor, Heat Exch. (TE)
38	43193043	Spring
39	43157167	Heater, Crankcase
40	44246236	Capillary Tube
41	43055379	Capillary, Electrolytic
43	43146459	Capillary Tube
44	43107215	Holder, Sensor (TL)

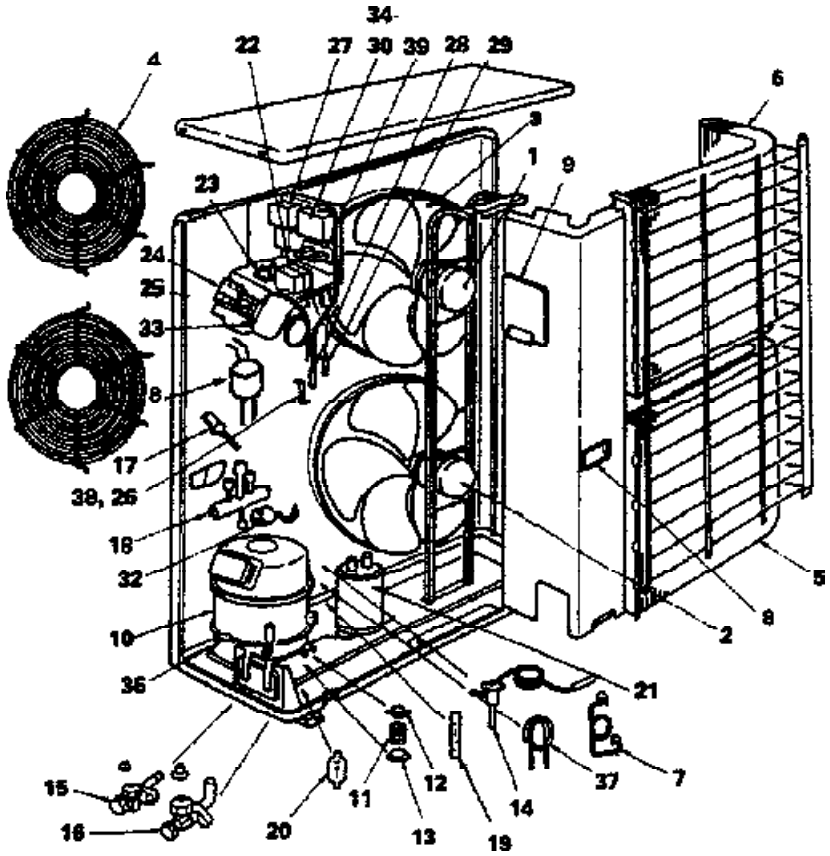
RAV-262AH8-PE



Location No.	Part No.	Description
1	43120156	Fan, Propeller
2	43A21002	Motor, Fan, AC 230V, 50Hz
3	43A43002	Condenser
4	43049132	Base, Spring, B
5	43149198	Spring, Buffer
6	43149212	Base, Spring, A
7	43A69003	PC Board
8	43A49001	Switch, High-Pressure
9	43060479	Terminal, 4P
10	43A60005	Terminal, 4P
11	43A60001	Terminal, 4P
12	43152345	Magnetic Contactor
13	43050277	Thermostat, Bimetal
14	43A19001	Guard, Fan
15	43119368	Hanger
16	43A46004	Solenoid Coil
17	43162027	Cover, Electric Parts
18	43146418	Valve, 4-Way
20	43107215	Holder, Sensor (For TE)
21	43169600	Holder

Location No.	Part No.	Description
22	43148114	Accumulator
23	43145082	Dryer
24	43155080	Capacitor, Plastic Film
25	43141302	Compressor, AC 380/415V, 50Hz, YH330X3-MS
26	43146451	Packed Valve (3/8")
27	43146417	Packed Valve (5/8")
28	43147321	Check Joint
29	43146433	Expansion Valve
30	43046156	Checked Valve
31	43146283	Checked Valve
33	43A58003	Transformer, Power
34	43154148	Return Lock STR-4AB
36	43A50001	Sensor, Cond. Out (TL)
37	43150196	Sensor, Heat Exch. (TE)
38	43193043	Spring
39	43157167	Heater, Crankcase
41	43063195	Holder Thermostat, Bimetal
43	43146459	Capillary Tube
44	43107215	Holder, Sensor (TL)

RAV-362AH8-PE
RAV-462AH8-PE



Location No.	Part No.	Description	
1	43A21002	Motor, AC 230V, 50Hz, Fan	
2	43A21003	Motor, AC 230V, 50Hz, Fan	
3	43120156	Fan, Propeller	
4	43A19001	Guard, Fan	
5	43143638	Condenser, Lower	(RAV-362AH8-PE)
5	43143636	Condenser, Lower	(RAV-462AH8-PE)
6	43143639	Condenser, Upper	(RAV-362AH8-PE)
6	43143637	Condenser, Upper	(RAV-462AH8-PE)
7	43047492	Capillary Tube	(RAV-362AH8-PE)
7	43047527	Capillary Tube	(RAV-462AH8-PE)
8	43119368	Hanger	
9	43162027	Cover, Electric Parts	
10	43140404	Compressor, YH406JA	(RAV-362AH8-PE)
10	43140506	Compressor, YH506JA	(RAV-462AH8-PE)
11	43149198	Spring, Buffer	
12	43149212	Base, Spring, A	
13	43049132	Base, Spring, B	
14	43146362	Expansion Valve	(RAV-362AH8-PE)
14	43146438	Expansion Valve	(RAV-462AH8-PE)
15	43146451	Packed Valve (3/8")	
16	43146416	Packed Valve (3/4")	
17	43147321	Check Joint	
18	43146498	Valve, 4-Way	(RAV-362AH8-PE)
18	43146499	Valve, 4-Way	(RAV-462AH8-PE)

Location No.	Part No.	Description	
19	43146283	Checked Valve	
20	43145092	Dryer	
21	43148096	Accumulator	(RAV-362AH8-PE)
21	43148114	Accumulator	(RAV-462AH8-PE)
22	43155080	Capacitor, Plastic Film	
23	43060479	Terminal, 4P	
24	43A60005	Terminal, 4P	
25	43A60001	Terminal, 4P	
26	43107215	Holder, Sensor (TL)	
27	43152342	Magnetic Contactor	(RAV-362AH8-PE)
27	43152343	Magnetic Contactor	(RAV-462AH8-PE)
28	43150196	Sensor, Heat Exch. (TE)	
29	43A50001	Sensor, Cond. OUt (TL)	
30	43A69003	PC Board	
32	43A46004	Solenoid Coil	
33	43169600	Holder	
34	43163016	Support	
35	43A49001	Switch, High-Pressure	
36	43157140	Heater, Crankcase	
37	43146430	Capillary Tube	(RAV-362AH8-PE)
37	43146431	Capillary Tube	(RAV-462AH8-PE)
38	43107215	Holder, Sensor (TE)	
39	43A58003	Transformer, Power	

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